TEXAS INSTRUMENTS

Bill of Materials

Iniversal Digital Interface to Absolute Position Encod

				oders					
Item	Quantity	Designator	Value	Description	Manufacturer	PartNumber	Alternate Part	PackageReference	Note
2	1	PCB1 C1, C10	0.1uF	Printed Circuit Board CAP, CERM, 0.1 μF, 100 V, +/- 10%, X7R, 0603	Any MuRata	TIDA-00179 GRM188R72A104KA35D		0603	
3	5	C2, C3, C13, C14, C34	10uF	CAP, CERM, 10uF, 25V, +/-10%, X5R, 0805	TDK	C2012X5R1E106K125AB		0805	
4	2	C4, C24	1000pF	CAP, CERM, 1000 pF, 25 V, +/- 10%, X7R, 0402	Wurth Elektronik	885012205044		0402	
5	6	C5, C6, C11, C12, C16, C30	1uF	CAP, CERM, 1 µF, 100 V, +/- 10%, X7S, 0805	TDK	C2012X7S2A105K125AB		0805	
6	1	C7	2200pF	CAP, CERM, 2200 pF, 16 V, +/- 10%, X7R, 0603_095	Wurth Elektronik	885012206036		0603_095	
7	1	C8	15pF	CAP, CERM, 15 pF, 50 V, +/- 5%, C0G/NP0, 0402	Wurth Elektronik	885012005056		0402	
8	1	C9 C15	0.01uF 33pF	CAP, CERM, 0.01 μF, 16 V, +/- 10%, X7R, 0402 CAP, CERM, 33 pF, 25 V, +/- 5%, C0G/NP0, 0402	Wurth Elektronik Wurth Elektronik	885012205031 885012005043		0402 0402	
10	2	C17, C19	0.1uF	CAP, CERM, 0.1 µF, 100 V, +/- 10%, X7R, 0805	Kemet	C0805C104K1RACTU		0805	
11	1	C18	0.022uF	CAP, CERM, 0.022 µF, 100 V, +/- 10%, X7R, 0603	TDK	C1608X7R2A223K		0603	
12 13	1	C20 C21	4700pF 0.1uF	CAP, CERM, 4700 pF, 25 V, +/- 10%, X7R, 0402 CAP, CERM, 0.1 μF, 25 V, +/- 10%, X7R, 0603_095	MuRata Wurth Elektronik	GRM155R71E472KA01D 885012206071		0402 0603_095	
14	1	C22	470uF	CAP, AL, 470 µF, 25 V, +/- 20%, 0.15 ohm, SMD	Wurth Elektronik	865080457015		D10xL10.5mm	
15	1	C23	0.22uF	CAP, CERM, 0.22 µF, 16 V, +/- 10%, X7R, 0603_095	Wurth Elektronik	885012206048		0603_095	
16	7	C25, C26, C31, C27, C28, C29,	0.1uF 330pF	CAP, CERM, 0.1 μF, 16 V, +/- 10%, X7R, 0603_095 CAP, CERM, 330 pF, 50 V, +/- 5%, C0G/NP0, 0603	Wurth Elektronik	885012206046 885012006060		0603_095 0603	
17	-	C32	550pi	0-4 , 0ERW, 330 pr , 30 V, 47-370, 00074 0, 0003	Wurth Elektronik	000012000000		0003	
18	2	C33, C35	0.47uF	CAP, CERM, 0.47 µF, 50 V, +/- 10%, X7R, 0805	Wurth Elektronik	885012207102		0805	
19 20	1	C36 C38	2.2uF 0.01uF	CAP, CERM, 2.2 μF, 25 V, +/- 10%, X7R, 0805 CAP, CERM, 0.01 μF, 50 V, +/- 5%, C0G/NP0, 0805	MuRata MuRata	GRM21BR71E225KA73L GRM2195C1H103JA01D		0805	
20	3	D1, D17, D20	Green	LED, Green, SMD	Wurth Elektronik	150060GS75000		LED_0603	
22	1	D2	Yellow	LED, Yellow, SMD	Wurth Elektronik	150060Y\$75000		LED_0603	
23	7	D5, D6, D7, D8, D9, D10, D11	30V	Diode, Schottky, 30 V, 0.2 A, SOT-23	ON Semiconductor	BAT54SLT1G		SOT-23	
23	1	D9, D10, D11 D13	Red	LED, Red, SMD	Wurth Elektronik	150060R\$75000		LED_0603	
	2	D14, D18	80V	Diode, Schottky, 80 V, 0.5 A, SOD-123	Micro Commercial	MBR0580-TP		SOD-123	
25	1	D15	3V	Diode, Zener, 3 V, 225 mW, SOT-23	Components ON Semiconductor	MMBZ5225BLT1G		SOT-23	
26 27	1	D15 D19	Blue	LED, Blue, SMD	ON Semiconductor Wurth Elektronik	150060B\$75000		LED_0603	
28	1	D21	8.2V	Diode, Zener, 8.2 V, 500 mW, SOD-123	Vishay-Semiconductor	MMSZ4694-V		SOD-123	
29	3	FID1, FID2, FID3		Fiducial mark. There is nothing to buy or mount.	N/A B&E Eastener Supply	N/A		Fiducial	
30 31	3	H1, H2, H3 H5, H6, H7		Machine Screw, Round, #4-40 x 1/4, Nylon, Philips panhead Standoff, Hex, 0.5"L #4-40 Nylon	B&F Fastener Supply Keystone	NY PMS 440 0025 PH 1902C		Screw Standoff	
32	2	J1, J2		Header, 100mil, 5x2, Tin, TH	Sullins Connector Solutions	PEC05DAAN		Header, 5x2, 100mil,	
22	5	J3, J8, J9, J10,		Header, 2.54 mm, 2x1, Gold, TH	Wurth Elektropik	61300211121		Header, 2.54mm, 2x1,	
33 34	2	J11 J5, J15		Header, 2.54mm, 2x1, Gold, SMT	Wurth Elektronik Wurth Elektronik	61000218321		TH Header, 2.54mm, 2x1,	
	1	J6		D-Sub-15, 17Pos, TH		09 66 252 6610		D-Sub-15, 2rows,	
35 36	1	J7		Header, 2.54mm, 10x1, Gold, TH	Harting Wurth Elektronik	61301011121		Female, TH Header, 2.54mm, 10x1,	
30	2	J12, J16		Header, 2.54 mm, 1x1, Gold, TH	WULLI Elektrollik	61300111121		Header, 2.54 mm, 1x1, Header, 2.54 mm, 1x1,	
37					Wurth Elektronik			TH	
38	2	J13 L1, L2	100uH	WR-DC DC Power Jack, R/A, TH Inductor, Shielded Drum Core, Ferrite, 100 µH, 0.52 A, 0.77 ohm,	Wurth Elektronik	694106301002 74408943101		WR-DC DC Power 4.8x3.8x4.8mm	
39	ŕ	L1, L2	roourr	SMD	Wurth Elektronik	14400343101		4.0.0.0.4.01111	
40	2	L4, L5	100uH	Inductor, Shielded Drum Core, Ferrite, 100 µH, 0.3 A, 0.52 ohm, SMD	Wurth Elektronik	744043101		WE-TPC-M2	
41	1	L6	6.8uH	Inductor, Shielded, 6.8 µH, 0.88 A, 0.3682 ohm, SMD	Wurth Elektronik	74438334068		SMD, 2-Leads, Body 3.2x3.2mm	
42	6	Q1, Q3, Q4, Q6,	30V	MOSFET, N/P-CH, 30 V, 1.5 A,	Texas Instruments	CSD17483F4T			
43 44	1	Q2 Q5	-12V -20V	MOSFET, P-CH, -12 V, -2.3 A, MOSFET, P-CH, -20 V, -15 A, SON 3.3x3.3mm	Texas Instruments Texas Instruments	CSD23381F4 CSD25402Q3A		SON 3.3x3.3mm	
44	14	Q5 R1, R2, R5, R6,	10	RES, 10 ohm, 5%, 0.25W, 0603	Texas instruments	CRCW060310R0JNEAHP		0603	
		R7, R8, R9, R10,							
45		R11, R12, R62, R66, R73, R78			Vishay-Dale				
46	6	R3, R4, R13, R34,	560	RES, 560, 5%, 0.063 W, 0402	Vishay-Dale	CRCW0402560RJNED		0402	
47	3			RES, 100 k, 5%, 0.063 W, 0402	Vishay-Dale	CRCW0402100KJNED			
48 49		R14, R19, R33	100k			CDCM/040054 D0 INFD		0402	
	3	R15, R24, R39	100k 51	RES, 51, 5%, 0.063 W, 0402 RES, 4.99 k, 1%, 0.063 W, 0402	Vishay-Dale Vishay-Dale	CRCW040251R0JNED CRCW04024K99FKED		0402	
50	3	R15, R24, R39 R16, R48, R61 R17, R32	100k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603	Vishay-Dale Vishay-Dale Vishay-Dale	CRCW04024K99FKED CRCW06030000Z0EA		0.102	
50	3 3 2 7	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31,	100k 51 4.99k	RES, 4.99 k, 1%, 0.063 W, 0402	Vishay-Dale	CRCW04024K99FKED		0402 0402	
50 51	3 2 7	R15, R24, R39 R16, R48, R61 R17, R32	100k 51 4.99k 0	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603	Vishay-Dale Vishay-Dale	CRCW04024K99FKED CRCW06030000Z0EA		0402 0402 0603	
51 52	3 2 7 2	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R69, R70, R71, R72 R20, R36	100k 51 4.99k 0 0 150k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 0, 5%, 0.063 W, 0402 RES, 150 k, 5%, 0.063 W, 0402	Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale	CRCW04024K99FKED CRCW06030000Z0EA CRCW04020000Z0ED CRCW0402150KJNED		0402 0402 0603 0402 0402	
51 52 53	3 2 7 2 2 2	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R69, R70, R71, R72 R20, R36 R22, R44	100k 51 4.99k 0 0 150k 240	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 0, 0, 063 W, 0402 RES, 150 k, 5%, 0.063 W, 0402 RES, 240, 5%, 0.1 W, 0603	Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale	CRCW04024K99FKED CRCW0603000020EA CRCW0402000020ED CRCW0402150KJNED CRCW0603240RJNEA		0402 0402 0603 0402 0402 0402 0603	
51 52 53 54	3 2 7 2 2 2 4 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R69, R70, R71, R72 R20, R36	100k 51 4.99k 0 0 150k 240 49.9k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 0, 5%, 0.063 W, 0402 RES, 150 k, 5%, 0.063 W, 0402 RES, 240, 5%, 0.1 W, 0603 RES, 49, k, 1%, 0.063 W, 0402	Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale	CRCW04024K99FKED CRCW0603000020EA CRCW04020000Z0ED CRCW0402150KJNED CRCW0603240RJNEA CRCW040249K9FKED		0402 0402 0603 0402 0402	
51 52 53 54 55 56	3 2 7 2 2 4 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R69, R70, R71, R72 R20, R36 R22, R44 R23, R26, R54, R27 R28	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0.ohm, 5%, 0.1W, 0603 RES, 0.5%, 0.063 W, 0402 RES, 150 k, 5%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 3.9 t, 1%, 0.063 W, 0402 RES, 3.9 t, 1%, 0.063 W, 0402	Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale	CRCW04024K99FKED CRCW0603000020EA CRCW0402000020ED CRCW0402150KJNED CRCW0603240RJNEA CRCW0603240RJNEA CRCW040249K9FKED CRCW04023K92FKED		0402 0402 0603 0402 0603 0603 0603 0402 0402 0402 0402	
51 52 53 54 55 56 57	3 3 2 7 2 2 4 1 1 1 1	R15, R24, R39 R16, R24, R39 R17, R32 R18, R21, R31, R69, R70, R71, R72 R20, R36 R22, R44 R23, R26, R54, R27 R28 R28 R29 R29	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 0, 5%, 0.063 W, 0402 RES, 150 k, 5%, 0.063 W, 0402 RES, 240, 5%, 0.1 W, 0603 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 1, 1%, 5%, 0.063 W, 0402 RES, 1, 1%, 5%, 0.063 W, 0402 RES, 1, 1%, 1%, 0.063 W, 0402 RES, 5, 11, 1%, 0, 063 W, 0402	Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale	CRCW04024K99FKED CRCW040200020EA CRCW0402000020ED CRCW040240RJNED CRCW0603240RJNEA CRCW040240K9FKED CRCW04023K9FKED CRCW04023K92FKED CRCW04023K11FKED		0402 0402 0603 0402 0402 0603 0402 0402 0402 0402 0402	
51 52 53 54 55 56 57 58	3 3 2 7 2 2 4 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R69, R70, R71, R72 R20, R36 R22, R44 R23, R26, R54, R27 R28	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0.ohm, 5%, 0.1W, 0603 RES, 0.5%, 0.063 W, 0402 RES, 150 k, 5%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 3.9 t, 1%, 0.063 W, 0402 RES, 3.9 t, 1%, 0.063 W, 0402	Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale	CRCW04024K99FKED CRCW0603000020EA CRCW0402000020ED CRCW0402150KJNED CRCW0603240RJNEA CRCW0603240RJNEA CRCW040249K9FKED CRCW04023K92FKED		0402 0402 0603 0402 0603 0603 0603 0402 0402 0402 0402	
51 52 53 54 55 56 57 58 59 60	3 3 2 7 2 2 4 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R69, R70, R71, R72 R20, R36 R22, R44 R23, R26, R54, R27 R28 R30 R36 R36 R37	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 1.2k 26.1k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 0, 0, 063 W, 0402 RES, 40, 5%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 9.1 k, 5%, 0.063 W, 0402 RES, 5.1 k, 1%, 0.063 W, 0402 RES, 1.3 k, 5%, 0.063 W, 0402 RES, 1.4 k, 5%, 0.063 W, 0402 RES, 1.4 k, 5%, 0.063 W, 0402	Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale	CRCW04024499FKED CRCW040200020EA CRCW0402000020ED CRCW0402000020ED CRCW0402150KJNED CRCW040249K9FKED CRCW040249K9FKED CRCW04023K92FKED CRCW04023K92FKED CRCW04022K11FKED CRCW040212K0JNED CRCW040212K0JNED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 56 57 58 59 60 61	3 3 2 7 2 2 4 1 1 1 1 1 1 1 4	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R36, R69, R70, R71, R72 R20, R36 R22, R44 R22, R24, R24, R23, R26, R54, R27 R28 R29 R30 R35 R37 R38	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 1.2k 26.1k 31.6k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0.ohm, 5%, 0.1W, 0603 RES, 0, 5%, 0.063 W, 0402 RES, 150 k, 5%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 3.9 k, 1%, 0.063 W, 0402 RES, 3.8 k, 1%, 0.063 W, 0402 RES, 3.8 k, 5%, 0.063 W, 0402 RES, 3.9 k, 5%, 0.063 W, 0402 RES, 11 k, 1%, 0.063 W, 0402 RES, 12 k, 5%, 0.063 W, 0402 RES, 12 k, 1%, 0.063 W, 0402 RES, 24 k, 1%, 0.063 W, 0402 RES, 32 k, 1 k, 1%, 0.063 W, 0402 RES, 24 k, 1%, 0.063 W, 0402 RES, 31 k, 1%, 0.063 W, 0402	Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale	CRCW040244939FKED CRCW0402400020EA CRCW0402100020ED CRCW0402150KJNED CRCW0402340KJNED CRCW040249K9FKED CRCW040245K11FKED CRCW04025K11FKED CRCW040212K0JNED CRCW040212K0JNED CRCW040212K0JNED CRCW040212K0JNED		0402 0402 0603 0402 0402 0603 0402 0402 0402 0402 0402 0402 0402 04	
51 52 53 54 55 56 57 58 59 60 61 62	3 3 2 7 2 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R69, R70, R71, R72 R20, R36 R22, R44 R23, R26, R54, R27 R28 R30 R36 R36 R37	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 1.2k 26.1k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 1, 50 k, 5%, 0.063 W, 0402 RES, 40, 5%, 0.063 W, 0402 RES, 49, 9 k, 1%, 0.063 W, 0402 RES, 9, 1 k, 5%, 0.063 W, 0402 RES, 49, 9 k, 1%, 0.063 W, 0402 RES, 31 k, 5%, 0.063 W, 0402 RES, 51 k, 5%, 0.063 W, 0402 RES, 51 k, 5%, 0.063 W, 0402 RES, 13 k, 5%, 0.063 W, 0402 RES, 26, 1 k, 1%, 0.063 W, 0402 RES, 31 k, 1%, 0.063 W, 0402	Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale	CRCW04024499FKED CRCW040200020EA CRCW0402000020ED CRCW0402000020ED CRCW0402150KJNED CRCW040249K9FKED CRCW040249K9FKED CRCW04023K92FKED CRCW04023K92FKED CRCW04022K11FKED CRCW040212K0JNED CRCW040212K0JNED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 56 57 58 59 60 61 62 63 64	3 3 2 7 7 2 2 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R49, R70, R71, R72 R20, R36 R20, R36 R22, R44 R23 R24 R23 R28 R30 R37 R38 R41 R41 R42	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 10.0k 51.1 0.1	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 1, 50 k, 5%, 0.063 W, 0402 RES, 1, 1%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 1, 1%, 5%, 0.063 W, 0402 RES, 1, 1%, 5%, 0.063 W, 0402 RES, 3, 1, 5%, 0.063 W, 0402 RES, 3, 1, 5%, 0.063 W, 0402 RES, 5, 11, 1%, 0.063 W, 0402 RES, 12, 13, 5%, 0.063 W, 0402 RES, 13, k, 5%, 0.063 W, 0402 RES, 13, k, 5%, 0.063 W, 0402 RES, 21, k, 5%, 0.063 W, 0402 RES, 31, 6, 1%, 0.063 W, 0402 RES, 31, 6, 1%, 0.063 W, 0402 RES, 51, 1, 1%, 0.125 W, 0605	Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Panasonic	CRCW04024499FKED CRCW040200002EA CRCW040200002EB CRCW0402150KJNED CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEB CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW040231K30JNED CRCW040231K30JNED CRCW040231K5FKED CRCW040231K5FKED CRCW040231K5FKED CRCW040251R1FKED CRCW040251R1FKED CRCW040251R1FKED CRCW040251R1FKED CRCW040251R1FKED CRCW040251R1FKED CRCW040251R1FKED CRU040251R1FKED CRU040251R1FKED CRU040251R1FKED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65	1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R08, R70, R71, R72, R36, R70, R71, R72, R36, R70, R71, R72, R44, R20, R36 R22, R44, R23, R26, R54, R23 R36 R37 R38 R40 R42 R45	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 1.2k 26.1k 31.6k 51.1 0.0k 51.1	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 10, 5%, 0.063 W, 0402 RES, 20, 5%, 0.1 W, 0603 RES, 49, 9 k, 1%, 0.063 W, 0402 RES, 14, 5%, 0.063 W, 0402 RES, 14, 1%, 0.063 W, 0402 RES, 14, 1%, 0.063 W, 0402 RES, 21, 1, 1%, 0.063 W, 0402 RES, 21, 6, 1%, 0.063 W, 0402 RES, 31, 6, 1%, 0.063 W, 0402 RES, 31, 6, 1%, 0.063 W, 0402 RES, 11, 1%, 0.063 W, 0402	Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale Vishay-Dale	CRCW04024493FKED CRCW04024493FKED CRCW040200020EA CRCW040200020ED CRCW0402150KJNED CRCW040246K9FKED CRCW040234K9FKED CRCW04023K11FKED CRCW04023K11FKED CRCW04023K11FKED CRCW04023K1FKED CRCW04023K1FKED CRCW04023K1FKED CRCW04023K1FKED CRCW040231K6FKED CRCW040231KFFKED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66	3 3 2 7 7 2 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R49, R70, R71, R72 R20, R36 R20, R36 R22, R44 R23 R24 R23 R28 R30 R37 R38 R41 R41 R42	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 1.2k 5.1.1k 31.6k 10.0k 51.1 0.1k 1.2k 1.15k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 1, 0 hm, 5%, 0.1W, 0603 RES, 2, 0 hm, 5%, 0.1W, 0603 RES, 2, 40, 5%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 31, 2%, 0.063 W, 0402 RES, 31, 2%, 0.063 W, 0402 RES, 51, 1k, 5%, 0.063 W, 0402 RES, 12, k, 5%, 0.063 W, 0402 RES, 13, k, 5%, 0.063 W, 0402 RES, 13, k, 5%, 0.063 W, 0402 RES, 13, k, 5%, 0.063 W, 0402 RES, 51, 1, 1%, 0.063 W, 0402 RES, 1, 1, 1%, 0.125 W, 0805 RES, 1, 1, 1%, 0.063 W, 0402	Vishay-Dale Vishay-Dale	CRCW04024499FKED CRCW0402000026EA CRCW0402000026ED CRCW0402150KJNED CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEB CRCW04023182NHED CRCW04023182NHED CRCW04023182NHED CRCW04023182NHED CRCW04023182NHED CRCW04023182NHED CRCW04023182NHED CRCW04023182NHED CRCW04023182FKED CRCW04023182FKED CRCW040218019FKED CRCW040218019FKED CRCW040218019FKED CRCW04021181FKED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68	1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R30, R30, R30, R71, R72 R20, R36 R20, R36 R22, R44 R23, R26, R54, R27 R23 R30 R30 R30 R41 R42 R45 R46 R45 R46 R47 R48 R45 R46 R47 R48, R52, R63, R43	100k 100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 10.0k 51.1 1.2k 51.1 1.2k 510 10k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 10, 5%, 0.063 W, 0402 RES, 20, 5%, 0.1 W, 0603 RES, 40, 9 k, 1%, 0.063 W, 0402 RES, 40, 9 k, 1%, 0.063 W, 0402 RES, 3.0 k, 5%, 0.063 W, 0402 RES, 3.0 k, 5%, 0.063 W, 0402 RES, 3.1 k, 1%, 0.063 W, 0402 RES, 11 k, 1%, 0.063 W, 0402 RES, 11 k, 1%, 0.063 W, 0402 RES, 12 k, 5%, 0.063 W, 0402 RES, 12 k, 5%, 0.063 W, 0402 RES, 31.6 k, 1%, 0.063 W, 0402 RES, 31.6 k, 1%, 0.063 W, 0402 RES, 11 k, 1%, 0.063 W, 0402 RES, 51.1 k, 0.063 W, 0402 RES, 51.5 k, 0.063 W, 0402 RES, 51.5 k, 5%, 0.063 W, 0402 RES, 51.5 k, 5%, 0.063 W, 0402 RES, 51.5 k, 5%, 0.063 W, 0402 RES, 51.5 k, 50, 0.063 W, 0402	Vishay-Dale Vishay-Dale	CRCW040244939FKED CRCW0402400020EA CRCW0402100020ED CRCW0402150KJNED CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340SFKED CRCW0402340SFKED CRCW040212K0JNED CRCW040212K0JNED CRCW040212K0JNED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED CRCW04021K0SFKED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 57 57 57 57 58 59 60 61 62 63 64 65 66 67 66 68 69	1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R31, R48, R61 R17, R32, R31, R31, R34, R59, R70, R71, R72 R20, R36 R21, R31, R34, R32, R34, R32 R22, R44 R23 R23 R24 R25 R30 R31 R32 R33 R34 R41 R42 R45 R46 R47 R48 R49, R52, R63, R64, R55	100k 51 4.99k 0 0 150k 240 49.9k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 10.0k 51.1 0.0k 51.1 1.2k 1.2k 1.2k 1.2k 1.5k 510 10k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 0, 0, 063 W, 0402 RES, 4.9, k, 1%, 0.063 W, 0402 RES, 4.9, k, 1%, 0.063 W, 0402 RES, 4.9, s, 1%, 0.063 W, 0402 RES, 1, 1%, 0.063 W, 0402 RES, 3, 1, 5%, 0.063 W, 0402 RES, 1, 1%, 0.125 W, 0805 RES, 1, 1 k, 0.063 W, 0402 RES, 1, 1 k, 0.063 W, 0402 RES, 1, 1 k, 0.063 W, 0402 RES, 1, 1 k, 1%, 0.063 W, 0402 RES, 10 k, 5%, 0.063 W, 0402 RES, 10 k, 5%, 0.063 W, 0402 RES, 50 k, 0.63 W, 0402	Vishay-Dale Vishay-Dale	CRCW04024499FKED CRCW060300002EA CRCW060300002EA CRCW040200002ED CRCW040200002ED CRCW040200002ED CRCW0402150KJNED CRCW040249K9FKED CRCW040249K9FKED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K0NFED CRCW04021K0FKED CRCW04021K0K34FKED CRCW04021K0K34FKED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R36, R50, R71, R72 R08, R70, R71, R72 R20, R36 R22, R44 R23, R26, R54, R27 R23 R24, R44 R25 R36 R47 R49, R52, R63, R50, R55 R51	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 10.0k 51.1 0.1 1.2k 51.1 1.2k 51.1 1.2k 51.1 1.2k 51.1 0.4 1.50 51 10.0k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 0, 0, 063 W, 0402 RES, 1, 50 k, 5%, 0.10 W, 0603 RES, 2, 0, 5%, 0.1 W, 0603 RES, 49, 9 k, 1%, 0, 063 W, 0402 RES, 49, 9 k, 1%, 0, 063 W, 0402 RES, 31, 45%, 0.063 W, 0402 RES, 13, 45%, 0.063 W, 0402 RES, 13, 45%, 0.063 W, 0402 RES, 13, 45%, 0.063 W, 0402 RES, 14, 1%, 0.063 W, 0402 RES, 26, 1k, 1%, 0.063 W, 0402 RES, 14, 1%, 0.063 W, 0402 RES, 14, 1%, 0.063 W, 0402 RES, 11, 1%, 1%, 0.063 W, 0402 RES, 11, 1%, 1%, 0.063 W, 0402 </td <td>Vishay-Dale Vishay-Dale</td> <td>CRCW040244939FKED CRCW04024493FKED CRCW040200020EA CRCW040200020ED CRCW040200020ED CRCW0402150KJNED CRCW0402340FJNEA CRCW0402340FJNEA CRCW0402340FJNEA CRCW0402340FJRED CRCW0402340FJNED CRCW04023K11FKED CRCW040215K0JNED CRCW040215K0JNED CRCW040215K0JNED CRCW04021K0JNFED CRCW04021K0JNFED</td> <td></td> <td>0402 0402 0402 0402 0402 0402 0402 0402</td> <td></td>	Vishay-Dale Vishay-Dale	CRCW040244939FKED CRCW04024493FKED CRCW040200020EA CRCW040200020ED CRCW040200020ED CRCW0402150KJNED CRCW0402340FJNEA CRCW0402340FJNEA CRCW0402340FJNEA CRCW0402340FJRED CRCW0402340FJNED CRCW04023K11FKED CRCW040215K0JNED CRCW040215K0JNED CRCW040215K0JNED CRCW04021K0JNFED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 55 55 55 55 55 55 60 61 62 63 64 65 66 64 65 66 67 68 69 70 71 72	1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R34, R39, R70, R71, R72 R20, R36 R22, R44 R23, R26, R54, R23 R23, R26, R54, R23 R36 R37 R36 R44 R42 R44 R45 R47 R48 R51 R51 R51 R56, R79	100k 51 4.99k 0 0 150k 240 40.9k 9.1k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 51.1 0.0k 51.1 0.1 1.2k 510 10k 6.34k 4.7k 20k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 1, 50 k, 5%, 0.063 W, 0402 RES, 2 ohm, 5%, 0.1W, 0603 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 9.1 K, 5%, 0.063 W, 0402 RES, 9.1 K, 5%, 0.063 W, 0402 RES, 9.1 K, 5%, 0.063 W, 0402 RES, 1.3 K, 5%, 0.063 W, 0402 RES, 1.3 K, 5%, 0.063 W, 0402 RES, 1.3 K, 5%, 0.063 W, 0402 RES, 1.1 K, 1%, 0.063 W, 0402 RES, 1.2 K, 5%, 0.063 W, 0402 RES, 3.1 K, 1%, 0.063 W, 0402 RES, 5.1 K, 1%, 0.063 W, 0402 RES, 5.1 K, 1%, 0.063 W, 0402 RES, 5.1 K, 5%, 0.063 W, 0402 RES, 5.1 K, 5%, 0.063 W, 0402 RES, 5.1 K, 5%, 0.063 W, 0402 RES, 5.1 T, 5%, 0.063 W, 0402 RES, 5.1 K, 5%, 0.063 W, 0402 RES, 4.7 K, 5%, 0.063 W, 0402	Vishay-Dale Vishay-Dale	CRCW04024493FKED CRCW04024493FKED CRCW04020002EA CRCW04020002ED CRCW0402150KJNED CRCW0402450KJNED CRCW040249K9FKED CRCW0402340FJNEA CRCW04023K9FKED CRCW04023K9FKED CRCW04023K11FKED CRCW04023K1FKED CRCW04023K1FKED CRCW04023K1FKED CRCW04023K1FKED CRCW04023K1K5FKED CRCW04023TK0FKED CRCW04021K0FKED CRCW04022K3FKED CRCW04022K3FKED CRCW04022K3FKED CRCW04022K3FKED CRCW04022K3ZEZR0NED CRCW04022K3ZER0NED		0402 0402 0603 0402 0402 0402 0402 0402 0402 0402 04	
51 52 53 55 55 55 55 57 58 60 61 62 63 64 65 66 64 65 66 66 68 69 70 71 72 73	1 1 1 1 1 1 1 1 2 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R34, R61 R17, R32 R18, R21, R31, R34, R34 R20, R36 R20, R36 R23, R26, R54, R27 R28 R29 R30 R37 R38 R40 R41 R42 R44 R42 R41 R42 R45 R46 R47 R48, R52, R63, R55 R51 R63 R64 R65 R64 R65	100k 51 4.99k 0 0 150k 240 49.9k 3.92k 5.11k 1.3k 1.3k 1.3k 1.3k 1.3k 1.3k 1.3k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0.0m, 5%, 0.1W, 0603 RES, 1, 50 k, 5%, 0.063 W, 0402 RES, 1, 1%, 0.063 W, 0402 RES, 3, 1, 5%, 0.063 W, 0402 RES, 3, 1, 5%, 0.063 W, 0402 RES, 1, 1%, 0.125 W, 0605 RES, 1, 1%, 0.125 W, 0605 RES, 1, 1%, 0.063 W, 0402 RES, 2, 5%, 0.063 W, 0402 RES, 2, 5%, 0.063 W, 0	Vishay-Dale Vishay-Dale	CRCW04024499FKED CRCW040200002EA CRCW040200002EB CRCW0402150KJNED CRCW0402150KJNED CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEB CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW040231K3/INED CRCW040231K3/INED CRCW040221K3/INED CRCW040221K3/INED CRCW040221K1FKED CRCW040231K6FKED CRCW04021K5/INED CRCW04021K5/INFED CRCW04021K5/INFED CRCW04021K5/INFED CRCW04021K5/INFED CRCW04021K5/INFED CRCW04021K5/INFED CRCW04021K5/INFED CRCW040221R1FED CRCW040221R1FED CRCW040220KJNED CRCW04022R0JNED CRCW04022R0JNED CRCW04022R0JNED CRCW04022R0JNED CRCW04022R0JNED CRCW04022R0JNED CRCW04022R0JNFED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 55 55 55 57 58 59 60 61 62 63 64 65 66 65 66 66 67 68 89 70 71 72 73 74	1 1 1 1 1 1 1 1 2 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R48, R21, R31, R48, R21, R31, R48, R21, R31, R72, R44, R22, R44 R23, R26, R54, R23, R26, R54, R23 R26 R30 R37 R38 R41 R42 R43 R44 R45 R40 R43 R46 R47 R48 R49, R52, R63, R50, R55 R51 R53 R56, R79 R58	100k 51 4.99k 0 0 150k 240 49.9k 240 49.9k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 31.6k 51.1 0.1 1.2k 510 10k 6.34k 4.7k 20k 22 309k 10k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 0, 5%, 0.063 W, 0402 RES, 2, 0 ohm, 5%, 0.1W, 0603 RES, 49, 9 k, 1%, 0.063 W, 0402 RES, 49, 9 k, 1%, 0.063 W, 0402 RES, 31, 15%, 0.063 W, 0402 RES, 31, 15%, 0.063 W, 0402 RES, 13, 15%, 0.063 W, 0402 RES, 13, 15%, 0.063 W, 0402 RES, 13, 15%, 0.063 W, 0402 RES, 12 k, 5%, 0.063 W, 0402 RES, 12 k, 5%, 0.063 W, 0402 RES, 51, 15%, 0.063 W, 0402 RES, 51, 15%, 0.063 W, 0402 RES, 51, 15%, 0.063 W, 0402 RES, 11, 1%, 0.063 W, 0402 RES, 11, 15%, 0.063 W, 0402 RES, 51, 1, 15%, 0.063 W, 0402 RES, 51, 15 K, 5%, 0.063 W, 0402 RES, 51, 15 K, 5%, 0.063 W, 0402 RES, 51, 15 K, 5%, 0.063 W, 0402 RES, 51 K, 5%, 0.063 W, 0402 RES, 50, 50, 50, 0063 W, 0402 RES, 50, 50, 0063 W, 0402 RES, 50, 50, 0063 W, 0402 RES, 50, 50, 0053 W, 0402 RES, 20, 5%, 0.063 W, 0402 RES,	Vishay-Dale Vishay-Dale	CRCW040244939FKED CRCW040244939FKED CRCW040200020EA CRCW040200020ED CRCW0402000020ED CRCW0402150KJNED CRCW040240K9FKED CRCW040240K9FKED CRCW0402240K9FKED CRCW04023K92FKED CRCW04022K10NED CRCW04022K1FKED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K0JNED CRCW04021K0JNED CRCW040230K47DJNED CRCW040230K0JNED CRCW040230		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 55 55 55 55 57 58 60 61 62 63 64 65 66 64 65 66 66 68 69 70 71 72 73	1 1 1 1 1 1 1 1 2 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R34, R61 R17, R32 R18, R21, R31, R34, R34 R20, R36 R20, R36 R23, R26, R54, R27 R28 R29 R30 R37 R38 R40 R41 R42 R44 R42 R41 R42 R45 R46 R47 R48, R52, R63, R55 R51 R63 R64 R65 R64 R65	100k 51 4.99k 0 0 150k 240 49.9k 3.92k 5.11k 1.3k 1.3k 1.3k 1.3k 1.3k 1.3k 1.3k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0.0m, 5%, 0.1W, 0603 RES, 1, 50 k, 5%, 0.063 W, 0402 RES, 1, 1%, 0.063 W, 0402 RES, 3, 1, 5%, 0.063 W, 0402 RES, 3, 1, 5%, 0.063 W, 0402 RES, 1, 1%, 0.125 W, 0605 RES, 1, 1%, 0.125 W, 0605 RES, 1, 1%, 0.063 W, 0402 RES, 2, 5%, 0.063 W, 0402 RES, 2, 5%, 0.063 W, 0	Vishay-Dale Vishay-Dale	CRCW04024499FKED CRCW040200002EA CRCW040200002EB CRCW0402150KJNED CRCW0402150KJNED CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEB CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW040231K3/INED CRCW040231K3/INED CRCW040221K3/INED CRCW040221K3/INED CRCW040221K1FKED CRCW040231K6FKED CRCW04021K5/INED CRCW04021K5/INFED CRCW04021K5/INFED CRCW04021K5/INFED CRCW04021K5/INFED CRCW04021K5/INFED CRCW04021K5/INFED CRCW04021K5/INFED CRCW040221R1FED CRCW040221R1FED CRCW040220KJNED CRCW04022R0JNED CRCW04022R0JNED CRCW04022R0JNED CRCW04022R0JNED CRCW04022R0JNED CRCW04022R0JNED CRCW04022R0JNFED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 56 57 58 59 60 61 65 66 66 66 67 70 71 72 73 74 75 76 77	1 1 1 1 1 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 1 1 1 1 2 2 1 1 1 2 2 1 1 1 1 2 2 1 1 1 1 2 2 1 1 1 1 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R34, R63, R70, R71, R72 R08, R70, R71, R72 R20, R36 R21, R34, R44 R23, R26, R54, R27 R23, R26, R54, R27 R23 R36 R44 R35 R37 R38 R40 R41 R42 R44 R45 R47 R48 R47 R48 R51 R56 R59 R66 R40 R41 R42 R43 R44 R45 R46	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 51.1 0.1 1.2k 510 10k 6.34k 4.7k 20k 22 309k 10k 23.7k 56.2 8.06k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0.0m, 5%, 0.1W, 0603 RES, 1, 50 k, 5%, 0.063 W, 0402 RES, 2, 0.m, 5%, 0.1W, 0603 RES, 2, 0.05 W, 0.063 W, 0402 RES, 4.9. k, 1%, 0.063 W, 0402 RES, 4.9. k, 1%, 0.063 W, 0402 RES, 3.1 k, 5%, 0.063 W, 0402 RES, 1.1 k, 5%, 0.063 W, 0402 RES, 3.1 k, 1%, 0.063 W, 0402 RES, 3.1 k, 1%, 0.063 W, 0402 RES, 1.1 k, 1%, 0.063 W, 0402 RES, 1.1 k, 1%, 0.063 W, 0402 RES, 1.1 k, 5%, 0.063 W, 0402 RES, 3.4 k, 1%, 0.063 W, 0402 RES, 2.4 k, 5%, 0.063 W, 0402	Vishay-Dale Vishay-Dale	CRCW040244939FKED CRCW04024493FKED CRCW040200020EA CRCW040200020ED CRCW040200020ED CRCW0402150KJNED CRCW040246K9FKED CRCW0402340KJNEA CRCW0402340KJNEA CRCW04023K151FKED CRCW04023K11FKED CRCW04023K1FKED CRCW04023K1FKED CRCW040231K6FKED CRCW040231K1FKED CRCW040231K1FKED CRCW040231K1FKED CRCW040231K1FKED CRCW040231K1FKED CRCW040231K1FKED CRCW040231K1FKED CRCW040210K0FKED CRCW040210K0FKED CRCW040210K0NED CRCW040220K0NED CRCW040220K0NED CRCW040220K0NED CRCW040220K0NED CRCW040230K70NED CRCW040230K70NED CRCW040230K7KED CRCW040230K7FKED CRCW040230K6FKED CRCW040230K6FKED CRCW040230K6FKED CRCW040230K6FKED CRCW040230K6FKED CRCW04040540K6FKED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 68 69 70 71 72 73 74 75 76 77 78	1 1 1 1 1 1 1 1 1 1 2 2 1 1 1 2 1 1 1 1 2 1 1 1 1 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R49, R50, R70, R71, R72 R20, R36 R20, R36 R21, R31, R31, R32, R34, R32 R22, R44 R23, R26, R54, R27 R28 R27 R30 R31 R32 R41 R41 R42 R41 R42 R40 R55 R51 R52 R63, R52, R63, R54 R55 R56 R77 R58 R60 R80, R82 R86 R66 T2	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 10.0k 51.1 0.1 1.2k 1.3k 1.2k 1.3k 1.2k 1.3k 1.2k 1.3k 1.2k 1.3k 1.2k 1.1k 5.10 0 1.2k 1.2k 1.1k 5.11k 1.3k 1.2k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0.0m, 5%, 0.1W, 0603 RES, 1, 50 k, 5%, 0.063 W, 0402 RES, 4.9, k, 1%, 0.063 W, 0402 RES, 4.9, k, 1%, 0.063 W, 0402 RES, 4.9, s, 1%, 0.063 W, 0402 RES, 3.1 k, 5%, 0.063 W, 0402 RES, 3.1 k, 5%, 0.063 W, 0402 RES, 5.1 k, 1%, 0.063 W, 0402 RES, 1.3 k, 5%, 0.063 W, 0402 RES, 1.3 k, 5%, 0.063 W, 0402 RES, 1.3 k, 5%, 0.063 W, 0402 RES, 5.1 k, 1%, 0.063 W, 0402 RES, 1.1 k, 1%, 0.063 W, 0402 RES, 1.1 k, 1%, 0.063 W, 0402 RES, 1.1 k, 1%, 0.063 W, 0402 RES, 10 k, 5%, 0.063 W, 0402 RES, 10 k, 5%, 0.063 W, 0402 RES, 2, 5%, 0.063 W, 0402 RES, 2, 5%, 0.063 W, 0402 RES, 10 k, 5%, 0.01 W, 0603 RES, 10 k, 5%, 0.1 W, 0603 RES, 50 k, 1%, 0.063 W, 0402 RES, 50 k, 1%, 0.053 W, 0402	Vishay-Dale Vishay-Dale	CRCW04024493FKED CRCW04024493FKED CRCW040200002EA CRCW040200002EB CRCW040200002ED CRCW0402150KJNED CRCW0402340RJNEA CRCW040249K9FKED CRCW0402340K3PKED CRCW0402340K3PKED CRCW04023K392FKED CRCW04023K392FKED CRCW04023K30FKED CRCW04023K5FKED CRCW04023K6FKED CRCW04023K6FKED CRCW04023K6FKED CRCW04023K6FKED CRCW04023K6FKED CRCW04023K6FKED CRCW04023K65FKED CRCW04023K65FKED CRCW04023K65FKED CRCW04023K65FKED CRCW04023K65FKED CRCW04023K65FKED CRCW04023K65FKED CRCW04023K65FKED CRCW04023K7FKED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 55 56 57 58 59 60 61 62 63 66 66 67 68 69 70 71 72 73 74 75 76 77	1 1 1 1 1 1 1 1 1 1 2 2 1 1 1 2 1 1 1 1 2 1 1 1 1 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R34, R63, R70, R71, R72 R08, R70, R71, R72 R20, R36 R21, R34, R44 R23, R26, R54, R27 R23, R26, R54, R27 R23 R36 R44 R35 R37 R38 R40 R41 R42 R44 R45 R47 R48 R47 R48 R51 R56 R59 R66 R40 R41 R42 R43 R44 R45 R46	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 51.1 0.1 1.2k 510 10k 6.34k 4.7k 20k 22 309k 10k 23.7k 56.2 8.06k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 0 ohm, 5%, 0.1W, 0603 RES, 10, 5%, 0.063 W, 0402 RES, 49, 9 k, 1%, 0.063 W, 0402 RES, 91, 5%, 0.063 W, 0402 RES, 91, 5%, 0.063 W, 0402 RES, 91, 1%, 0.063 W, 0402 RES, 13, 15%, 0.063 W, 0402 RES, 13, 1%, 0.063 W, 0402 RES, 14, 1%, 0.063 W, 0402 RES, 11, 1%, 0.063 W, 0402 RES, 10 k, 5%, 0.063 W, 0402 RES, 10 k, 5%, 0.063 W, 0402 RES, 20 k, 5%, 0.063 W, 0402 RES, 21 h, 5%, 0.063 W, 0402 RES, 20 k, 5%, 0.063 W, 0402	Vishay-Dale Vishay-Dale	CRCW040244939FKED CRCW04024493FKED CRCW040200020EA CRCW040200020ED CRCW040200020ED CRCW0402150KJNED CRCW040246K9FKED CRCW0402340KJNEA CRCW0402340KJNEA CRCW04023K151FKED CRCW04023K11FKED CRCW04023K1FKED CRCW04023K1FKED CRCW040231K6FKED CRCW040231K1FKED CRCW040231K1FKED CRCW040231K1FKED CRCW040231K1FKED CRCW040231K1FKED CRCW040231K1FKED CRCW040231K1FKED CRCW040210K0FKED CRCW040210K0FKED CRCW040210K0NED CRCW040220K0NED CRCW040220K0NED CRCW040220K0NED CRCW040220K0NED CRCW040230K70NED CRCW040230K70NED CRCW040230K7KED CRCW040230K7FKED CRCW040230K6FKED CRCW040230K6FKED CRCW040230K6FKED CRCW040230K6FKED CRCW040230K6FKED CRCW04040540K6FKED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 70 71 72 73 74 75 76 77 78 79 80	1 1 1 1 1 1 1 1 1 1 2 2 1 1 1 2 1 1 1 1 2 1 1 1 1 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R36, R50, R71, R72 R36, R70, R71, R72 R20, R36 R22, R44 R23, R26, R54, R27 R23, R26, R54, R27 R23, R26, R54, R27 R37 R36 R37 R37 R38 R44 R42 R44 R42 R45 R47 R48, R52, R63, R50, R55 R51 R56, R79 R58 R66 T2 U1	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 51.1 0.1 1.2k 510 10k 6.34k 4.7k 20k 22 309k 10k 23.7k 56.2 8.06k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0 ohm, 5%, 0.1W, 0603 RES, 10 hm, 5%, 0.1W, 0603 RES, 10 hm, 5%, 0.1W, 0603 RES, 40, 5%, 0.1 W, 0603 RES, 49, 9 k, 1%, 0.063 W, 0402 RES, 49, 9 k, 1%, 0.063 W, 0402 RES, 13, 1%, 5%, 0.063 W, 0402 RES, 14, 1%, 0.063 W, 0402 RES, 13, 1 k, 1%, 0.063 W, 0402 RES, 13, 1 k, 1%, 0.063 W, 0402 RES, 51, 1 k, 1%, 0.063 W, 0402 RES, 11, 1%, 0.063 W, 0402 RES, 11, 1%, 0.063 W, 0402 RES, 51, 1, 1%, 0.063 W, 0402 RES, 51, 1, 5%, 0.063 W, 0402 RES, 50, 5%, 0.063 W, 0402 RES,	Vishay-Dale Vishay-Dale	CRCW040244939FKED CRCW04024493FKED CRCW04020002EA CRCW04020002EB CRCW04020002ED CRCW0402150KJNED CRCW040249K9FKED CRCW0402340FJNEA CRCW0402340FJNEA CRCW0402340FJNEA CRCW04023K11FKED CRCW04023K11FKED CRCW04023K1FKED CRCW040231K6FKED CRCW040231K6FKED CRCW040231K6FKED CRCW04021K0NFED CRCW04021K0NFED CRCW04021K0NFED CRCW040221K0NFED CRCW040221K0NFED CRCW040221K0NFED CRCW040221K0NFED CRCW040221K0NFED CRCW040222X0FKED CRCW040223K7FKED CRCW04023K7FKED CRCW04023K7FKED CRCW04023K7FKED CRCW04023K7FKED		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 56 57 58 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 70 77 78 80 81	1 1 1 1 1 1 1 1 2 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R16, R48, R61 R17, R32 R18, R21, R31, R34, R35 R49, R70, R71, R72 R20, R36 R21, R31, R37, R23, R28, R54, R23 R22, R44 R23, R28, R54, R27 R28 R29 R30 R33 R41 R42 R44 R45 R46 R47 R48 R57 R58 R66, R79 R57 R58 R60 T2 U1 U2 U3	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 51.1 0.1 1.2k 510 10k 6.34k 4.7k 20k 22 309k 10k 23.7k 56.2 8.06k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0.0m, 5%, 0.1W, 0603 RES, 1, 50 k, 5%, 0.063 W, 0402 RES, 4.90 k, 1%, 0.063 W, 0402 RES, 4.90 k, 1%, 0.063 W, 0402 RES, 4.90 k, 1%, 0.063 W, 0402 RES, 5.1 k, 5%, 0.063 W, 0402 RES, 5.1 k, 1%, 0.063 W, 0402 RES, 1.1 k, 50, 0.063 W, 0402 RES, 1.1 k, 50, 0.063 W, 0402 RES, 1.1 k, 50, 0.063 W, 0402 RES, 5.1 k, 5%, 0.063 W, 0402 RES, 5.1 k, 5%, 0.063 W, 0402 RES, 2.6 k, 5%, 0.063 W, 0402 RES, 2.6 k, 5%, 0.063 W, 0402 RES, 2.6 k, 5%, 0.063 W, 0402 RES, 2.5 k, 50, 0.053 W, 0402 </td <td>Vishay-Dale Texas Instruments Texas Instruments</td> <td>CRCW040244939FKED CRCW040200002EA CRCW040200002EA CRCW040200002EA CRCW0402150KJNED CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEB CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW040231K5FKED CRCW040228K1FFKED CRCW040228K1FKED CRCW040228</td> <td></td> <td>0402 0402 0402 0402 0402 0402 0402 0402</td> <td></td>	Vishay-Dale Texas Instruments Texas Instruments	CRCW040244939FKED CRCW040200002EA CRCW040200002EA CRCW040200002EA CRCW0402150KJNED CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEB CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW040231K5FKED CRCW040228K1FFKED CRCW040228K1FKED CRCW040228		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 57 58 59 60 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	1 1 1 1 1 1 1 1 2 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R16, R48, R61 R17, R32 R18, R21, R31, R34, R45, R34, R34 R49, R70, R71, R72 R20, R36 R21, R31, R34, R34 R22, R44 R23, R26, R54, R27 R28 R29 R30 R37 R38 R40 R42 R42 R42 R42 R42 R45 R46 R47 R48 R47 R48 R47 R48 R49, R52, R63, R65 R51 R53 R54 R57 R58 R60 R82 R86 R17 R182 R17 R182 R182 R182 R182 R182 <	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 51.1 0.1 1.2k 510 10k 6.34k 4.7k 20k 22 309k 10k 23.7k 56.2 8.06k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0.0m, 5%, 0.1W, 0603 RES, 1, 50 k, 5%, 0.063 W, 0402 RES, 40, 5%, 0.063 W, 0402 RES, 40, 5%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 51.1 k, 5%, 0.063 W, 0402 RES, 51.6 k, 1%, 0.063 W, 0402 RES, 51.6 k, 1%, 0.063 W, 0402 RES, 51.6 k, 1%, 0.063 W, 0402 RES, 51.1 k, 50, 0.063 W, 0402 RES, 51.5 k, 50, 0.063 W, 0402 RES, 22, 5%, 0.063 W, 0402 <tr< td=""><td>Vishay-Dale Vishay-Dale</td><td>CRCW040244939FKED CRCW040200002EA CRCW040200002EA CRCW040200002EB CRCW0402150KJNED CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEB CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW040231K5FKED CRCW040228K1FFKED CRCW040228K1FKED CRCW040228</td><td></td><td>0402 0402 0402 0402 0402 0402 0402 0402</td><td></td></tr<>	Vishay-Dale Vishay-Dale	CRCW040244939FKED CRCW040200002EA CRCW040200002EA CRCW040200002EB CRCW0402150KJNED CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEB CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW0402340RJNED CRCW040231K5FKED CRCW040228K1FFKED CRCW040228K1FKED CRCW040228		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81	1 1 1 1 1 1 1 1 2 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R369, R70, R71, R72, R48, R21, R31, R89, R70, R71, R72, R43, R22, R44, R23, R26, R54, R37 R38 R40 R41 R42 R45 R46 R47 R48, R52, R63, R50, R55 R51 R52 R53 R54 R55 R51 R52 R53 R54 R55 R51 R52 R53 R54 R55 R56 R57 R58	100k 51 4.99k 0 0 150k 240 49.9k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 10.0k 51.1 0.1 1.2k 1.3k 1.3k 1.3k 1.2k 20.1 1.2k 1.3k 1.2k 20.1 1.2k 1.3k 1.2k 2.10 2.2 3.92k 1.0k 5.11k 1.3k 1.2k 1.1k 5.10 1.2k 5.11k 1.3k 5.11k 1.3k 5.11k 1.3k 5.11k 1.3k 5.11k 1.3k 1.2k 5.11k 1.3k 5.11k 1.3k 5.11k 1.3k 5.11k 1.3k 5.11k 1.2k 5.11k 1.2k 5.10k 1.2k 5.11k 5.10k 5.11k 5.10k 5.11k 5.10k 5.10k 5.11k 5.10k 5.0k 5.10k 5.0k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0.0m, 5%, 0.1W, 0603 RES, 1, 50 k, 5%, 0.063 W, 0402 RES, 4.9, k, 1%, 0.063 W, 0402 RES, 4.9, k, 1%, 0.063 W, 0402 RES, 4.9, s, 1%, 0.063 W, 0402 RES, 1, 1%, 0.063 W, 0402 RES, 31, 5%, 0.063 W, 0402 RES, 31, 5%, 0.063 W, 0402 RES, 51, 1%, 5%, 0.063 W, 0402 RES, 13, k, 5%, 0.063 W, 0402 RES, 13, k, 5%, 0.063 W, 0402 RES, 12, k, 5%, 0.063 W, 0402 RES, 12, k, 5%, 0.063 W, 0402 RES, 51, 1, 1%, 0.063 W, 0402 RES, 10, k, 5%, 0.063 W, 0402 RES, 10, k, 5%, 0.063 W, 0402 RES, 10, k, 5%, 0.063 W, 0402 RES, 20, k, 5%, 0.063 W, 0402 RES, 20, k, 5%, 0.063 W, 0402 RES, 10, k, 5%, 0.1 W, 0603 RES, 10, k, 5%, 0.1 W, 0603 RES, 10, k, 5%, 0.1 W, 0603 RES, 50, k, 1%, 0.063 W, 0402 RES, 50, k, 1%, 0.063 W, 0402	Vishay-Dale Texas Instruments Texas Instruments Texas Instruments Texas Instruments Texas Instruments	CRCW040244939FKED CRCW040224939FKED CRCW0402000020EA CRCW0402000020ED CRCW0402000020ED CRCW0402000020ED CRCW0402150KJNED CRCW0402340KJNEA CRCW0402340KJRKED CRCW0402340KJRKED CRCW04023K32FKED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K30JNED CRCW04021K5KED CRCW04021K5FKED CRCW04021K5FKED CRCW04021K0KFKED CRCW04021K0KFKED CRCW04021K0K0FKED CRCW04021K0K0FKED CRCW04022K0K0HED CRCW04022K0K0HED CRCW04022K0K0HED CRCW04022K0K0HED CRCW04022K0K0HED CRCW04022K0K0HED CRCW04022K0K0HED CRCW04023K0FKED PE-68380H SN474CBTLV22S7K79KED TPS54060DRBR TPS54060DRBR TPS24750RUV LM2933D SN65HVD78D		0402 0402 0402 0402 0402 0402 0402 0402	
51 52 53 54 55 55 55 55 60 61 62 63 64 65 66 66 66 66 67 70 71 72 73 73 74 75 76 77 78 80 81 82 83	1 1 1 1 1 1 1 1 2 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	R15, R24, R39 R16, R48, R61 R17, R32 R18, R21, R31, R30, R30, R30, R71, R32 R08, R70, R71, R72 R20, R36 R20, R36 R21, R31, R31, R32, R32, R33 R30 R30 R30 R31 R44 R32 R40 R44 R45 R46 R45 R46 R45 R66 R66 T2 U1 U2 U3 U4 U5	100k 51 4.99k 0 0 150k 240 49.9k 9.1k 3.92k 5.11k 1.3k 12k 26.1k 31.6k 51.1 0.1 1.2k 510 10k 6.34k 4.7k 20k 22 309k 10k 23.7k 56.2 8.06k	RES, 4.99 k, 1%, 0.063 W, 0402 RES, 0.0m, 5%, 0.1W, 0603 RES, 1, 50 k, 5%, 0.063 W, 0402 RES, 40, 5%, 0.063 W, 0402 RES, 40, 5%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 49.9 k, 1%, 0.063 W, 0402 RES, 51.1 k, 5%, 0.063 W, 0402 RES, 51.6 k, 1%, 0.063 W, 0402 RES, 51.6 k, 1%, 0.063 W, 0402 RES, 51.6 k, 1%, 0.063 W, 0402 RES, 51.1 k, 50, 0.063 W, 0402 RES, 51.5 k, 50, 0.063 W, 0402 RES, 22, 5%, 0.063 W, 0402 <tr< td=""><td>Vishay-Dale Texas Instruments Texas Instruments Texas Instruments</td><td>CRCW040244939FKED CRCW040200002EA CRCW040200002EA CRCW040200002EB CRCW0402150KJNED CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEB CRCW040231830JNED CRCW040231827KED CRCW040231827KED CRCW040231827KED CRCW040231827KED CRCW040231830JNED CRCW0402310K0FKED CRCW0402310K0FKED CRCW040210K0FKED CRCW040210K0FKED CRCW040210K0FKED CRCW040210K0FKED CRCW040210K0FKED CRCW040210K0JNED CRCW0402210K0JNED CRCW0402230K0JNED CRCW04022330FKED CRCW04022330FKED CRCW04022330FKED CRCW04022330FKED CRCW04022330FKED CRCW04022330FKED CRCW0402330FKED CRCW0402330FKED CRCW0402330FFKED CRCW0402330FFKED CRCW0402330FFKED CRCW0402330FFKED CRCW0402330FFKED CRCW040</td><td></td><td>0402 0402 0402 0402 0402 0402 0402 0402</td><td></td></tr<>	Vishay-Dale Texas Instruments Texas Instruments Texas Instruments	CRCW040244939FKED CRCW040200002EA CRCW040200002EA CRCW040200002EB CRCW0402150KJNED CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEA CRCW0402340RJNEB CRCW040231830JNED CRCW040231827KED CRCW040231827KED CRCW040231827KED CRCW040231827KED CRCW040231830JNED CRCW0402310K0FKED CRCW0402310K0FKED CRCW040210K0FKED CRCW040210K0FKED CRCW040210K0FKED CRCW040210K0FKED CRCW040210K0FKED CRCW040210K0JNED CRCW0402210K0JNED CRCW0402230K0JNED CRCW04022330FKED CRCW04022330FKED CRCW04022330FKED CRCW04022330FKED CRCW04022330FKED CRCW04022330FKED CRCW0402330FKED CRCW0402330FKED CRCW0402330FFKED CRCW0402330FFKED CRCW0402330FFKED CRCW0402330FFKED CRCW0402330FFKED CRCW040		0402 0402 0402 0402 0402 0402 0402 0402	

IMPORTANT NOTICE FOR TI REFERENCE DESIGNS

Texas Instruments Incorporated ("TI") reference designs are solely intended to assist designers ("Buyers") who are developing systems that incorporate TI semiconductor products (also referred to herein as "components"). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer's systems and products.

TI reference designs have been created using standard laboratory conditions and engineering practices. **TI has not conducted any testing other than that specifically described in the published documentation for a particular reference design.** TI may make corrections, enhancements, improvements and other changes to its reference designs.

Buyers are authorized to use TI reference designs with the TI component(s) identified in each particular reference design and to modify the reference design in the development of their end products. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER TI INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN, including but not limited to any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services, or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of TI.

TI REFERENCE DESIGNS ARE PROVIDED "AS IS". TI MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE REFERENCE DESIGNS OR USE OF THE REFERENCE DESIGNS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. TI DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO TI REFERENCE DESIGNS OR USE THEREOF. TI SHALL NOT BE LIABLE FOR AND SHALL NOT DEFEND OR INDEMNIFY BUYERS AGAINST ANY THIRD PARTY INFRINGEMENT CLAIM THAT RELATES TO OR IS BASED ON A COMBINATION OF COMPONENTS PROVIDED IN A TI REFERENCE DESIGN. IN NO EVENT SHALL TI BE LIABLE FOR ANY ACTUAL, SPECIAL, INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES, HOWEVER CAUSED, ON ANY THEORY OF LIABILITY AND WHETHER OR NOT TI HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, ARISING IN ANY WAY OUT OF TI REFERENCE DESIGNS OR BUYER'S USE OF TI REFERENCE DESIGNS.

TI reserves the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI's terms and conditions of sale of semiconductor products. Testing and other quality control techniques for TI components are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers' products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers' products and applications, Buyers should provide adequate design and operating safeguards.

Reproduction of significant portions of TI information in TI data books, data sheets or reference designs is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards that anticipate dangerous failures, monitor failures and their consequences, lessen the likelihood of dangerous failures and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in Buyer's safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed an agreement specifically governing such use.

Only those TI components that TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components that have **not** been so designated is solely at Buyer's risk, and Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265 Copyright © 2015, Texas Instruments Incorporated