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SMPS design for Automotive Body Contrl Module

Designator	Description	Manufacturer	PartNumber	Quantity
IPC1	Printed Circuit Board	Any	TIDA-00745	1
1, 2, TP1, TP16	Test Point, Multipurpose, Red, TH	Keystone	5010	4
C1, C42	CAP, CERM, 10uF, 50V, +/-10%, X7R, 1210	MuRata	GRM32ER71H106KA12L	2
C2, C3	CAP, CERM, 0.1uF, 50V, +/-10%, X7R, 0603	AVX	06035C104KAT2A	2
C4	CAP, CERM, 0.47uF, 10V, +/-10%, X7R, 0603	Kemet	C0603C474K8RACTU	1
C5	CAP, AL, 180uF, 6.3V, +/-20%, 0.022 ohm, SMD	Nippon Chemi-Con	APXC6R3ARA181MF60G	1
C6, C7, C8	CAP, CERM, 22uF, 16V, +/-20%, X7R, 1210	TDK	C3225X7R1C226M	3
C9	CAP, CERM, 1000 pF, 100 V, +/- 5%, X7R, 0603	AVX	06031C102JAT2A	1
C10, C17, C19, C26, C28, C36	CAP, CERM, 2.2uF, 10V, +/-10%, X7R, 0603, CAP, CERM, 2.2 uF, 10 V, +/- 10%, X7R, 0603, CAP, CERM, 2.2 uF, 10 V, +/- 10%, X7R, 0603, CAP, CERM, 2.2 uF, 10 V, +/- 10%, X7R, 0603, CAP, CERM, 2.2 uF, 10 V, +/- 10%, X7R, 0603	MuRata	GRM188R71A225KE15D	6
C11	CAP, CERM, 0.033uF, 25V, +/-10%, X7R, 0603	MuRata	GRM188R71E333KA01D	1
C12, C13	CAP, CERM, 10 uF, 10 V, +/- 10%, X7R, 0805	TDK	C2012X7R1A106K125AC	2
C14	CAP, CERM, 4.7 uF, 16 V, +/- 10%, X5R, 0603	MuRata	GRM188R61C475KAAJ	1
C15	CAP, CERM, 0.1 uF, 16 V, +/- 5%, X7R, 0603	AVX	0603YC104JAT2A	1
C16, C18, C25, C27, C35	CAP, CERM, 1 uF, 10 V, +/- 10%, X7R, 0603	MuRata	GRM188R71A105KA61D	5
C20, C21, C29, C30, C37	CAP, CERM, 0.01 uF, 10 V, +/- 10%, X7R, 0603	AVX	0603ZC103KAT2A	5
C22, C23	CAP, CERM, 10uF, 10V, +/-10%, X5R, 1206	MuRata	GRM31CR71A106KA01L	2
C24	CAP, CERM, 0.47uF, 10V, +/-10%, X7R, 0603	MuRata	GRM188R71A474KA61D	1
C31, C33	CAP, CERM, 47uF, 6.3V, +/-20%, X5R, 1206	MuRata	GRM31CR60J476ME19L	2
C32, C34	CAP, CERM, 22uF, 10V, +/-10%, X7R, 1206	MuRata	GRM31CR71A226KE15L	2
C38	CAP, CERM, 1000 pF, 100 V, +/- 10%, X7R, 0603	AVX	06031C102KAT2A	1
C39	CAP, CERM, 0.1uF, 100V, +/-10%, X7R, 0603	MuRata	GRM188R72A104KA35D	1
C40	CAP, CERM, 1uF, 100V, +/-20%, X7R, 1206	TDK	C3216X7R2A105M160AA	1
C41, C48, C49, C50, C51, C54	CAP, AL, 47 uF, 50 V, +/- 20%, 0.3 ohm, SMD	Panasonic	EEE-FC1H470P	6
C43	CAP, CERM, 0.1uF, 50V, +/-10%, X7R, 0603	TDK	C1608X7R1H104K	1
C44, C45	CAP, CERM, 4.7uF, 50V, +/-10%, X7R, 1206	MuRata	GRM31CR71H475KA12L	2
C46, C47, C52, C53	CAP, CERM, 4.7 uF, 50 V, +/- 10%, X7R, 1210	MuRata	GRM32ER71H475KA88L	4
C55, C62	CAP, CERM, 100 pF, 50 V, +/- 5%, C0G/NP0, 0603	AVX	06035A101JAT2A	2
C56, CBOOT1	CAP, CERM, 0.1uF, 50V, +/-10%, X7R, 0603	MuRata	GRM188R71H104KA93D	2
C57	CAP, CERM, 1uF, 25V, +/-10%, X7R, 0603	MuRata	GRM188R71E105KA12D	1
C58	CAP, CERM, 0.033 uF, 50 V, +/- 10%, X7R, 0603	MuRata	GRM188R71H333KA61D	1
C59	CAP, CERM, 2200pF, 25V, +/-10%, X7R, 0603	MuRata	GRM188R71E222KA01D	1
C60	CAP, CERM, 560 pF, 50 V, +/- 10%, X7R, 0603	Kemet	C0603C561K5RACTU	1
C61	CAP, CERM, 330pF, 50V, +/-10%, X7R, 0603	MuRata	GRM188R71H331KA01D	1
CVCC1	CAP, CERM, 1uF, 16V, +/-10%, X7R, 0603	TDK	C1608X7R1C105K	1
D1	Diode, Schottky, 60 V, 12 A, DPAK	Vishay-Semiconductor	12CWQ06FNPBF	1
D2	Diode, Schottky, 70 V, 0.07 A, SOT-23	Diodes Inc.	BAS70-05-7-F	1
D3	Diode, P-N, 70 V, 0.2 A, SOT-323	Fairchild Semiconductor	BAV99WT1G	1
D4	Diode, Zener, 8.2 V, 300 mW, SOD-523	Diodes Inc.	BZT52C8V2T-7	1

Designator	Description	Manufacturer	PartNumber	Quantity
FID1, FID2, FID3, FID4, FID5, FID6	Fiducial mark. There is nothing to buy or mount.	N/A	N/A	6
H1, H2, H3, H4	Machine Screw, Round, #4-40 x 1/4, Nylon, Philips panhead	B&F Fastener Supply	NY PMS 440 0025 PH	4
H5, H6, H7, H8	Standoff, Hex, 0.5"L #4-40 Nylon	Keystone	1902C	4
J1, J2	Terminal Block, 6A, 3.5mm Pitch, 2-Pos, TH	On-Shore Technology	ED555/2DS	2
L1	Inductor, Shielded, Powdered Iron, 2.2uH, 5.3A, 0.021 ohm, SMD	Toko	FDV0630-2R2M	1
L2	Inductor, Shielded, ?, 4.7uH, 2.3A, 0.092 ohm, SMD	Coiltronics	MPI4040R3-4R7-R	1
L3, L4	Inductor, Shielded Drum Core, Ferrite, 3.3uH, 1.35A, 0.05 ohm, SMD	Coilcraft	LPS6225-332MLB	2
L5	Inductor, Shielded Drum Core, Ferrite, 3.5 uH, 9 A, 0.005 ohm, SMD	Würth Elektronik	744771003	1
L6	Coupled inductor, 11 uH, 2.5 A, 0.03 ohm, SMD	Würth Elektronik eiSos	744273102	1
LBL1	Thermal Transfer Printable Labels, 0.650" W x 0.200" H - 10,000 per roll	Brady	THT-14-423-10	1
LF1	Inductor, Shielded Drum Core, Ferrite, 2.2 uH, 3 A, 0.026 ohm, SMD	Würth Elektronik	74408943022	1
Q1	MOSFET, P-CH, -60 V, 30 A, PowerPAK_SO-8L	Vishay-Siliconix	SQJ461EP	1
Q3	MOSFET, N-CH, 60 V, 100 A, SOT669	NXP Semiconductor	BUK9Y9R0-60E	1
Q4	MOSFET, N-CH, 60 V, 0.17 A, SOT-23	Diodes Inc.	2N7002-7-F	1
R1, R2, R4, R7, R27	RES, 0 ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW06030000Z0EA	5
R3, R6, R10, R25	RES, 100k ohm, 1%, 0.1W, 0603, RES, 100k ohm, 1%, 0.1W, 0603, RES, 100k ohm, 1%, 0.1W, 0603, RES, 100 k, 1%, 0.1 W, 0603	Vishay-Dale	CRCW0603100KFKEA	4
R5	RES, 4.99, 1%, 0.1 W, 0603	Vishay-Dale	CRCW06034R99FKEA	1
R8	RES, 4.99k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW06034K99FKEA	1
R9	RES, 50.5 k, 0.1%, 0.1 W, 0603	Yageo America	RT0603BRD0750K5L	1
R11	RES, 10.0 k, 0.1%, 0.1 W, 0603	Yageo America	RT0603BRD0710KL	1
R12, R14	RES, 10k ohm, 5%, 0.1W, 0603	Yageo America	RC0603JR-0710KL	2
R13	RES, 4.99 ohm, 1%, 0.125W, 0805	Yageo America	RC0805FR-074R99L	1
R15, R17	RES, 49.9k ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060349K9FKEA	2
R16	RES, 6.65 k, 0.1%, 0.1 W, 0603	Yageo America	RT0603BRD076K65L	1
R18	RES, 31.6 k, 0.1%, 0.1 W, 0603	Yageo America	RT0603BRD0731K6L	1
R19, R20	RES, 10.2 k, 0.1%, 0.1 W, 0603	Yageo America	RT0603BRD0710K2L	2
R21	RES, 845, 1%, 0.1 W, 0603	Vishay-Dale	CRCW0603845RFKEA	1
R23	RES, 523 k, 1%, 0.1 W, 0603	Vishay-Dale	CRCW0603523KFKEA	1
R24	RES, 1.5 k, 5%, 0.1 W, 0603	Vishay-Dale	CRCW06031K50JNEA	1
R26	RES, 357 k, 1%, 0.1 W, 0603	Yageo America	RC0603FR-07357KL	1
R28	RES, 1.0k ohm, 5%, 0.1W, 0603	Vishay-Dale	CRCW06031K00JNEA	1
R29	RES, 0.012, 1%, 0.5 W, 1206	Stackpole Electronics Inc	CSR1206FK12L0	1
R30	RES, 1.80 ohm, 1%, 0.25W, 1206	Yageo America	RC1206FR-071R8L	1
R31	RES, 121 k, 1%, 0.1 W, 0603	Vishay-Dale	CRCW0603121KFKEA	1
R32	RES, 51.1 k, 1%, 0.1 W, 0603	Vishay-Dale	CRCW060351K1FKEA	1
R33	RES, 49.9 ohm, 1%, 0.1W, 0603	Vishay-Dale	CRCW060349R9FKEA	1
R34	RES, 5.23 k, 1%, 0.1 W, 0603	Vishay-Dale	CRCW06035K23FKEA	1
TP2	Test Point, Multipurpose, White, TH	Keystone	5012	1

Designator	Description	Manufacturer	PartNumber	Quantity
TP3, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP17, TP18, TP19, TP22, TP25, TP27	Terminal, Turret, TH, Double	Keystone	1503-2	18
TP4, TP20, TP21	Test Point, Multipurpose, Black, TH	Keystone	5011	3
TP23, TP24	Test Point, Miniature, Red, TH	Keystone	5000	2
TP26, TP28, TP32	Test Point, Miniature, Black, TH	Keystone	5001	3
TP29, TP30	Test Point, Miniature, White, TH	Keystone	5002	2
TP31	Test Point, Miniature, Orange, TH	Keystone	5003	1
U1	6th GENERATION BUCK REGULATOR, PWP0016H	Texas Instruments	LM536025QPWP	1
U2	Synchronous Buck Regulator for 650mA Space Constraint Applications, DSX0010A	Texas Instruments	LM53600NQDSXRQ1	1
U3, U4, U6, U7	Low Dropout Voltage Tracking LDO, DBV0005A	Texas Instruments	TPS7B4250QDBVRQ1	4
U5	Dual 2.0A, High Frequency Synchronous Step-Down DC DC Regulator, 16-pin LLP, Pb-Free	National Semiconductor	LM26420XSQ/NOPB	1
U8	300mA Low Dropout Voltage Tracking LDO, PWP0020D	Texas Instruments	TPS7B4253QPWPRQ1	1
U9	Automotive Catalog Low-Voltage Adjustable Precision Shunt Regulator, 80 mA, -40 to 125 degC, 3-pin SOT-23 (DBZ), Green (RoHS & no Sb/Br)	Texas Instruments	TLVH431BQDBZRQ1	1
U10	4.5-V TO 52-V INPUT CURRENT MODE BOOST CONTROLLER, DGQ0010D	Texas Instruments	TPS40210DGQ	1

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