

# Texas Instruments Space, Military and Enhanced Products Nomenclature

**Other helpful information:**

[ROHS Status for TI Hermetic Components](#)

[QML Class Q and V Flow and Lot Documents](#)

[Understanding quality levels for high reliability-rated components \(Rev. A\)](#)

# TI – DSCC Standard Microcircuit Drawing (SMD) Parts

Example: **5962R1022102VSC**

Drawing Number—**5962-10221**

Radiation Hardness Assured (RHA) Level Designator – **R**

“-” = non RHA, no radiation assurance

P = 30 krad

L = 50 krad

R = 100 krad

F = 300 krad

Device—**01**

Device Structure—**V**

M = Vendor self-certification to the requirements for MIL-STD-883 compliant

Q = Certification and qualification to the MIL-PRF-38535 (Class Q)

V = Space Grade Certification and qualification to the MIL-PRF-38535 (Class V)

Package—**S**

A = 14-pin Flatpack (1/4" x 1/4")

B = 14-pin Flatpack (3/16" x 1/4")

C = 14-pin DIP

J = 24-pin DIP

S = 20-pin Flatpack

D = 14-pin Flatpack

K = 24-pin Flatpack

V = 18-pin DIP

E = 16-pin DIP

L = 24-pin DIP

W = 22-pin DIP

F = 16-pin Flatpack

M = 12-pin Can

X = Other packages

G = 8-pin Can

P = 8-pin DIP

Y = Other packages

H = 10-pin Flatpack

Q = 40-pin DIP

2 = 20-pad LCC

I = 10-pin Flatpack

R = 20-pin DIP

3 = 28-pad LCC

Lead Finish—**C**

A = Solder Dip

C = Gold Plate

D = Palladium

SMD Drawings can be found on the Defense Logistics Agency website:

<https://landandmaritimeapps.dla.mil/programs/smcr/default.aspx>

SMD Number is the orderable part number for TI Heritage QMLV **Space** Products

Example: **5962R1022102VSC**

For TI Heritage QMLQ grade products, and National Heritage Space products, SMD number is an Alternate Part Number (APN). This can be found on ti.com in a product folder → Order Now tab → DSCC#

Order Now

Part#	Buy from TI store	TI store Inventory	Price   QTY	Buy from Distributors	Distributor Inventory	Package Pins	Package QTY   Carrier	Status	Preproduction / Production Material	Temp(C)	DSCC#
ADC128S102WGRQV	Not Available	No Stock	Contact Distributor	Distributors	100	CFP (NAC)   16	42	ACTIVE	Production	-55 to 125	5962R0722701VZA
ADC128S102WRQV	Not Available	No Stock	Contact Distributor	Contact Distributor	No Stock	CFP (NAD)   16	19   TUBE	ACTIVE	Production	-55 to 125	5962R0722701VFA

# TI – Ceramic/Metal Can Space Grade Products (via National acquisition)

Example: LM124AWGRLQMLV

## Package Designator – WG

WG = CFP gullwing (NAC/NBC)  
 W = CFP (NAD/NBA/NBB)  
 J = CDIP (J) or CDIP (NAB)  
 H = TO-99 (LMC) or TO (NDT/NDV)  
 K = TO-3 (K)  
 CC = CCGA (NAA)  
 LG = FVA  
 YH = TO (NDU)

## Radiation Hardness Assured (RHA) Level Designator – R

R = 100 krad  
 L = 50 krad  
 F = 300 krad  
 “-” = non RHA

## Dose Rate for RHA testing – L

L = Low Dose Rate (LDR)  
 No ‘L’ = High Dose Rate (HDR)

## Qualification Designator – QMLV

QMLV = Space Grade, MIL-PRF-38535 Class V  
 MLS = Processed to space grade but not on an SMD  
 MPR or /EM = Engineering Model for prototyping. See [here](#) for more information.

For National Heritage Space products, SMD number (5962) is an Alternate Part Number (APN). This can be found on ti.com in a product folder → Order Now tab → DSCC#. Customers can order with either SMD or Standard part number.

### Order Now

Part#	Buy from TI store	TI store Inventory	Price   QTY	Buy from Distributors	Distributor Inventory	Package Pins	Package QTY   Carrier	Status	Preproduction / Production Material	Temp(C)	DSCC#
ADC128S102WGRQV	Not Available	No Stock	Contact Distributor	Distributors	100	CFP (NAC)   16	42	ACTIVE	Production	-55 to 125	5962R0722701VZA
ADC128S102WRQV	Not Available	No Stock	Contact Distributor	Contact Distributor	No Stock	CFP (NAD)   16	19   TUBE	ACTIVE	Production	-55 to 125	5962R0722701VFA

# TI – Ceramic/Metal Can DSCC JAN Slash Sheet

**Example: JM38510/00104BCA**

**Process Level—JM38510/**

**Device/Slash Sheet—00104**

**Device Class—B**

**Package Type—C**

A = 14-pin Flatpack (1/4" x 1/4")

B = 14-pin Flatpack (3/16" x 1/4")

C = 14-pin DIP

D = 14-pin Flatpack

E = 16-pin DIP

F = 16-pin Flatpack

G = 8-pin Can

H = 10-pin Flatpack

I = 10-pin Flatpack

J = 24-pin DIP

K = 24-pin Flatpack

L = 24-pin DIP (300 mil)

M = 12-pin Can

P = 8-pin DIP

Q = 40-pin DIP

R = 20-pin DIP

S = 20-pin Flatpack

V = 18-pin DIP

W = 22-pin DIP

2 = 20-pad LCC

3 = 28-pad LCC

X = Other packages

Y = Other packages

**Lead Finish—A**

A = Solder Dip

C = Gold Plate

D = Palladium

# TI - Enhanced Product (COTS enhanced plastic parts)

Example: **TLE2022AMJGBEP**

**Unique Device Designator—TLE2022A**

A or B in last position = Upgrade

**Temperature Range—M**

M	= -55°C to 125°C
A / S	= Defined per datasheet
C	= 0°C to 70°C
I	= -40°C to 85°C
L	= -55°C to 110°C
Q	= -40°C to 125°C
T	= -40°C to 105°C
W	= -55°C to 115°C

**Package Type / Pin Count—JG**

See ti.com → product folder → Order Now

**Process Level—B**

Blank	= Standard Suffix, Commercial Processing
B	= MIL-PRF-38535 (QML)

**Enhanced Product—EP**

Over 750 Enhanced Plastic products meeting AQEC GEIA-STD-0002-1 standard are available. The part numbers for those devices end in EP. Additional information on EP products can be found here: [Enhanced Products Guide](#).

# TI - Military Power Management Products (via Unitrode acquisition)

Example: **UC1825BJ883BEP**

## Prefix—**TLE**

UC = Linear Integrated Circuits

UCC = BiCMOS

## Part Number—**1825**

First Digit “1” = Military Temperature Range\*

First Digit “2” = Industrial Temperature Range\*

First Digit “3” = Commercial Temperature Range\*

## Optional Grades—**B**

A or B = Improved Version

## Package Designation—**J**

J, JE = Ceramic DIP (300 mil and 600 mil)

L, L20 = Ceramic Leadless Chip Carrier (CLCC)

## Process Level—**883B**

## Enhanced Product—**EP**

Over 750 Enhanced Plastic products meeting AQEC GEIA-STD-0002-1 standard are available. The part numbers for those devices end in EP.

Additional information on EP products can be found here: [Enhanced Products Guide](#).

\* = Consult individual data sheets for specific temperature ranges on each part.

\*\* = The “883B” designator was retained to be consistent with the original Unitrode naming convention.

# TI- Military Digital Signal Processors (DSPs)

Example: **SMJ320C40GBM40EP**

## Prefix—SMJ

SM	= Commercial Processing
SMJ	= MIL-PRF-38535 (QML Class Q)
SMQ	= MIL-PRF-38535 (QML Class N) (Order by SMD)
SMP	= Production Prototype
SMX	= Military Preproduction
TMS	= Commercial Qualified
TMP	= Commercial Grade
SMV	= MIL-PRF-38535 QML Class V (Order by SMD)

## 320 DSP Family Designator—320 or 32

## 320 DSP Product Designator—C40

BC	= CMOS Boot				
C	= CMOS				
E	= CMOS EPROM				
F	= CMOS FLASH				
LC	= CMOS 3.3 V				
VC	= CMOS 1.5 V / 3.3 V				
14	= E14	50	= C50	5409	= VC5409
15	= C15	62	= C62xx	5421	= VC5421
25	= C25	64	= C64xx		
26	= C26	67	= C67xx		
30	= C30	80	= C80		
31	= C31	240	= F240		
32	= C32	2812	= F2812		
33	= VC33	5416	= VC5416		
40	= C40	549	= LC549		

## Package Type / Pin Count—GB

JD	= CDIP
FD/FJ	= LCCC
GB/GF	= CPGA
GFA	= CFBP
GLG/GLP	= FC/CSP
HFH/HFG	= CFP
HFP	= CFP
KGD	= KGD
PCM/PQ	= QFP
GNM	= FBGA
GAD	= FC $\mu$ BGA
GJC	= FC/CSP
GJL	= FC/CSP
GLZ	= FCBGA
GDP	= LQFP
PGE	= Plastic LQFP
GGU	= BGA
GGW	= BGA Microstar
PGF	= LQFP
GHH	= PBGA

## Temperature Range—M

M	= -55°C to 125°C
A	= -40°C to 105°C (C6000)
L	= 0°C to 70°C
W	= -55°C to 115°C
S	= Special Per datasheet
Blank	= 25°C

## Speed Designator—40

12	= 120 MHz
16	= 160 MIPS (VC5416)
20	= 200 MIPS (VC5421)
33	= 33 MHz
40	= 40 MHz
50	= 500 MHz (C64xx)
60	= 60 MHz (600 MHz C6415)
60	= 60 MIPS (C54x)
66	= 66 MHz
10	= 100 MIPS (C54x)
14	= 140 MHz
15	= 150 MHz
16	= 167 MHz
17	= 175 MHz
20	= 200 MHz
120	= 120 MFLOPS (VC33)
150	= 150 MFLOPS (VC33)

## Enhanced Product—EP

Over 750 Enhanced Plastic products meeting AQEC GEIA-STD-0002-1 standard are available. The part numbers for those devices end in EP. Additional information on EP products can be found here: [Enhanced Products Guide](#)

. \* = Not all speed, package, process, temperature combinations are available

# TI – Ceramic Logic

**Example:** SNJ54ABTH162245WDEP

## Prefix—SNJ

SNJ = MIL-PRF-38535 (QML)  
SN = Commercial Processing  
SNV = MIL-PRF-38535 QML Class V (Order by SMD)

## Type—54

### Technology—ABT

No designator = TTL  
ALS/AS = Advanced Low-Power Schottky Advanced Schottky  
AHC/AHCT = Advanced High Speed CMOS  
HC/HCT = High Speed CMOS  
BCT = BiCMOS  
AC/ACT = Advanced CMOS  
ABT = Advanced BiCMOS  
LVC = Low Voltage CMOS  
LVTH = Low Voltage Advanced CMOS w/ Bus Hold  
CDC = Clock Distribution Circuit  
CBT = Crossbar Bus Switch  
GTL = Gunning Transceiver Logic  
FCT = Fast CMOS Technology  
F = FAST

### Special Features—H

D = Level Shifting Diode (CBTD)  
H = Bus Hold (LVTH)

## Bus/Scan Options—16

8 = SCOPE/JTAG  
16 = Widebus  
18 = SCOPE/JTAG Widebus  
32 = Widebus+

## Options—2

2 = Series-Damping Resistors on Outputs

## Device Function—245

### Package Type—WD

PZ = LQFP  
PW = TSSOP  
DW = SOIC  
DL = SSOP  
D = SOIC  
DB = TSSOP  
DGG = TSSOP  
DCK = SOP  
GQL = BGA Microstar Junior  
ZQL = BGA Microstar Junior  
J,JT = CDIP  
W/WD = Ceramic Flatpack  
FK = Leadless Ceramic Chip Carrier  
HV, HT, HFP = Ceramic Quad Flatpack  
GB = Pin Grid Array (PGA)

### Enhanced Product—EP

Over 750 Enhanced Plastic products meeting AQEC GEIA-STD-0002-1 standard are available. The part numbers for those devices end in EP. Additional information on EP products can be found here: [Enhanced Products Guide](#)



# TI – Ceramic/Metal Can Logic (via Harris acquisition)

**Example:** CD4XXXXXX

**Prefix—CD**

**Device Function (up to 5 digits)—4XXXX**

**Supply Voltage—XX**

A = 2 V Max

B = 18 V Max

UB = 18 V Max Unbuffered

**Package Designation—X**

F = Ceramic Dual In-Line Package (CDIP)

K = Ceramic Flatpack

D = Metal Seal CDIP

**Process Levels—X**

3 = Mil Temp Commercial Processing

3A = MIL-PRF-38535 (QML)

B = MIL-M-38510 Electrical (QPL)

# TI – FIFOs (First-In, First-Out Products)

**Example:** SN54ABT36148HFPEP

**Prefix—SN**

SN = Commercial Processing

SNJ = MIL-PRF-38535 (QML) (Class Q)

**Military Temperature—54**

54 = -55°C to 125°C

74 = 0°C to 70°C

**Technology—ABT**

ABT = Advanced BiMOS

ACT = Advanced CMOS

LS = Low-Power Schottky

HC = High Speed CMOS (CMOS Input Levels)

HCT = High Speed CMOS (TTL Input Levels)

**Circuit Designator—3614**

J, JE = Ceramic DIP (300 mil and 600 mil)

L, L20 = Ceramic Leadless Chip Carrier (CLCC)

**Package Type—HFP**

J = CDIP

HFP = CFP

KGD = KGD

PCB/PN = QFP

FK = LCCC

GB = BGA Microstar

**Enhanced Product—EP**

Over 750 Enhanced Plastic products meeting AQEC GEIA-STD-0002-1 standard are available. The part numbers for those devices end in EP. Additional information on EP products can be found here: [Enhanced Products Guide](#)

# TI - Ceramic Programmable Logic

Example: **TIBPAL16L8-10MJB**

**Prefix—TIB**

TIB = IMPACT™

**Product Family Designator—PAL**

**Number of Array Inputs—16**

**Output Configuration Designator—L**

L = Active Low

R = Registered

V = Variable (programmable)

**Number of Outputs in Designated Configuration—8**

**Performance Designator—10**

-7 = 7 ns propagation delay

-10 = 10 ns propagation delay

-12 = 12 ns propagation delay

-15 = 15 ns propagation delay

-20 = 20 ns propagation delay

-25 = 25 ns propagation delay

-30 = 30 ns propagation delay

A = Standard power

A-2 = Half power

**Temperature Range—M**

M = -55°C to 125°C

**Package Type—J**

J, JT = Ceramic Dual In-Line Package (CDIP)

FK = Leadless Ceramic Chip Carrier (LCCC)

W = Ceramic Flatpack (CFP)

**Processing—B**

Blank = Commercial processing

B = MIL-PRF-38535 (QML) (Class Q)

For more information

[www.ti.com/hire1](http://www.ti.com/hire1)

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