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
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
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
X = Other packages
Y = Other packages
2 = 20-pad LCC
3 = 28-pad LCC

Lead Finish—C
A = Solder Dip
C = Gold Plate
D = Paladium

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#

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.
## TI – Ceramic/Metal Can DSCC JAN Slash Sheet

**Example:** JM38510/00104BCA

**Process Level**—JM38510/

**Device/Slash Sheet**—00104

**Device Class**—B

**Package Type**—C

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>14-pin Flatpack (1/4” x 1/4”)</td>
</tr>
<tr>
<td>B</td>
<td>14-pin Flatpack (3/16” x 1/4”)</td>
</tr>
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<td>16-pin Flatpack</td>
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<tr>
<td>G</td>
<td>8-pin Can</td>
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<tr>
<td>H</td>
<td>10-pin Flatpack</td>
</tr>
<tr>
<td>I</td>
<td>10-pin Flatpack</td>
</tr>
<tr>
<td>J</td>
<td>24-pin DIP</td>
</tr>
<tr>
<td>K</td>
<td>24-pin Flatpack</td>
</tr>
<tr>
<td>L</td>
<td>24-pin DIP (300 mil)</td>
</tr>
<tr>
<td>M</td>
<td>12-pin Can</td>
</tr>
<tr>
<td>P</td>
<td>8-pin DIP</td>
</tr>
<tr>
<td>Q</td>
<td>40-pin DIP</td>
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<tr>
<td>R</td>
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<td>S</td>
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</tr>
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<td>Other packages</td>
</tr>
</tbody>
</table>

**Lead Finish**—A

- A = Solder Dip
- C = Gold Plate
- D = Paladium
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: \textbf{UC1825BJ883BEP}

Prefix—\textbf{TLE}
UC = Linear Integrated Circuits
UCC = BiCMOS

Part Number—\textbf{1825}
First Digit “1” = Military Temperature Range*
First Digit “2” = Industrial Temperature Range*
First Digit “3” = Commercial Temperature Range*

Optional Grades—\textbf{B}
A or B = Improved Version

Package Designation—\textbf{J}
J, JE = Ceramic DIP (300 mil and 600 mil)
L, L20 = Ceramic Leadless Chip Carrier (CLCC)

Process Level—\textbf{883B}

Enhanced Product—\textbf{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

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)

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

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

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 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
- **JJT** = 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: **CD4XX**

Prefix—**CD**
Device Function (up to 5 digits)—**4XXX**

Supply Voltage—**XX**
- A = 2 V Max
- B = 18 V Max
- UB = 18 V Max Unbuffered

Circuit Designator—**3614**
- J, JE = Ceramic Dip (300 mil and 600 mil)
- L, L20 = Ceramic Leadless Chip Carrier (CLCC)

Package Type—**HFP**
- J = CDIP
- K = 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 – 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)

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 - 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/hirel
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