

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 μ 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

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
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