Intersil Legacy Nomenclature Guide

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ISL Types

ISL X XXXX X I XX X XXX Z -T

PREFIX

FAMILY DESIGNATOR
1: DSL, RTC, Clocks, ATE, Energy LED Lighting
2: Reference, DCPs, Buffers, Sensors, Precision Op Amp, Precision ADC & DAC
3: Interface, Data Communication
4: Analog Component Solutions
5: High Speed Amps, Switch/MUX, ADCs, DACs, Optical, Video, Telecom VoIP, DSP Function Specific
6: Desktop Power
7: Space, Auto
8: Analog Switches, General Purpose Power
9: Notebook, Handheld
A: High Speed ADCs

PART NUMBER
3 to 5 Digits

OPTION
E: 15kV ESD Protected
DCP Resistance Options
W: 10k
U: 50k
T: 100k

TEMPERATURE RANGE
C: 0°C to +70°C (Commercial)
D: 0°C to +85°C
H: -10°C to +100°C (Hi-Temp Comm.)
E: -20°C to +85°C (Extended Comm.)
I: -40°C to +85°C (Industrial)
A: -40°C to +105°C (Automotive)
F: -40°C to +125°C (Full-range Industrial)
P: -40°C to +130°C (Power Supply)
M: -55°C to +125°C (Military)
RHV: QML Class V (Radiation Hardened)
RHQ: QML Class Q (Radiation Hardened)
RHT: QML Class T (Radiation Hardened)
EHV: QML Class V (Radiation Hardened)
EHQ: QML Class Q (Radiation Hardened)
EHT: QML Class T (Radiation Hardened)

PB-FREE OPTION
Z: ROHS and IEC61249-2-21 Halogen Free

SPECIAL SELECTIONS
Optional Characters to Denote Operating Conditions or Package Options:
18: 1.8V
33: 3.3V
EP: Enhanced Product (DLA Vendor Item Drawing)
EPZ: Enhanced Product w/100% Matte Tin Lead Finish
A, B etc.: Firmware revision. This will not appear on part marking

OPTIONAL ELECTRICAL GRADE
To Denote Speed or Precision Grading as Defined in Datasheet

PACKAGE DESIGNATOR
A: Shrink Small Outline Plastic (SSOP/QSOP)
AR: Quad Flat No-Lead (Punch QFN with Wettable Flank)
B: Small Outline Plastic (SOIC)
BE: Exposed Pad SOIC (EPSOIC)
C: Available
D: Ceramic Dual-In-Line Metal Seal (SBDIP)
E: Small Outline Transistor Plastic (SC-70)
F: Ceramic Flatpack
FE: Ceramic Flatpack w/Heatsink
G: Single In-line Plastic (SIP) TO-220
GS: Single In-line Plastic, Surface Mount (SIP) TO-263
H: Small Outline Transistor Plastic (SOT-23)
HT: Thin Small Outline Transistor Plastic (TSOT)
I: Chip Scale Package (CSP)
J: Ceramic Dual-In-Line Frit Seal (CERDIP)
K: Ball Grid Array (FBGA/PBGA/LGA)
KE: Heat Sink Ball Grid Array (HBGA)
KV: Very Thin Fine Pitch BGA (VFBGA)
L: Ceramic Leadless Chip Carrier (CLCC, SMD 0.5)
M: Plastic Leaded Chip Carrier (PLCC)
N: Thin Plastic Quad Flatpack (TQFP/LQFP)
NE: Thin Plastic Quad Flatpack (TQFP/LQFP w/Exposed Pad)
O: Do Not Use
P: Dual-In-Line Plastic (PDIP)
Q: Metric Plastic Quad Flatpack (MQFP/PQFP)
R: Quad/Dual Flat No Lead (QFN/DFN)/HDA (High Density Array)
RA: Array Flat No Lead (AFN)
RO: Optical Quad/Dual Flat No Lead (OQFN/ODFN)
ROM: Optical Quad/Dual Flat No Lead Module
RT: Thin Quad/Dual Flat No Lead (TQFN/TDFN)
RU: Ultra Thin Quad/Dual Flat No Lead (UTQFN/UTDFN/ePad UTQFN)
RS: Top Exposed Pad QFN (TEPQFN)
RX: Extreme Thin Flat No Lead (X2DFN/X2QFN)
S: Header (TO-257)
T: Metal Can (TO-39)
U: Mini Small Outline Package (MSOP)
UE: Thermally Enhanced Mini Small Outline Package (HMSOP)
UO: Optical Mini Small Outline Package (OSOP)
V: THIN Shrink Small Outline Plastic (TSSOP)
VE: Thermally Enhanced Thin Shrink Small Outline Plastic (HTSSOP/EPTSSOP)
W: Wafer Sale
WMB: Wafer Sale With Solderable Metal Backing Layer
XM: Die Sale, Military Visual (Condition B)
XC: Die Sale, Commercial Visual
XB: Die Sale, Bumped Die (FCP)
Y: Available
Z: Do Not Use

SUFFIX/ POST PROCESSING/ SPECIAL SERVICES
-T: Tape and Reel
-T1: Tape and Reel
-T2: Tape and Reel w/Vacuum Pack
-T7: 7” Reel
-TS: 7” Reel, 100pc.
-T7A: 7” Reel, 250pc.
-T13: 13” Reel
-T5: 500pc Tape and Reel
-TK: 1,000pc Tape and Reel
-T5K: 5,000pc Tape and Reel
-EV: Evaluation Board
-EVZ: Evaluation Board ROHS Compliant
-DM: Demo Board
-DMZ: Demo Board ROHS Compliant
-RF: Ref Design Eval Board
-RFZ: Ref Design Eval Board ROHS Compliant
-EC: Enhanced Commercial (Enhanced EOL, MIL-PRF-38535 Change Notice, Traceable to Wafer Lot)

EL Types

EL 1503 A I R Z -T

- **EL** — **PREFIX**
- **1503** — **PART NUMBER**
- **A** — **OPTIONAL SUFFIX OR PART VARIATION**
- **I** — **TEMPERATURE RANGE**
  - C: (Commercial) 0°C to +70°C
  - I: (Industrial) -40°C to +85°C
  - M: (Military) -55°C to +125°C
  - A: (Automotive) -40°C to +105°C
  - D: 0°C to +85°C
  - E: (Extended Comm) -20°C to +85°C
- **R** — **PACKAGE FAMILY**
- **Z** — **PB-FREE OPTION**
  - Z: Pb-Free Product
- **-T** — **SUFFIX/POST PROCESSING/ SPECIAL SERVICES**
  - -T: Tape and Reel
  - -T7: 7” Reel
  - -T7A: 7” Reel (250 pcs)
  - -T13: 13” Reel

PACKAGE FAMILY

PACKAGE TYPE	PACKAGE DESIGNATOR
Bare Die	D
CerDip	J
QFN/DFN (Saw Singulate)	L
SO (0.300”) and HSOP	M
PDIP	N
TSSOP (4.4 mm)	R
HTSSOP (4.4 mm)	RE
SO (0.150”)	S
TO-220	T
QSOP	U
SOT-23	W
MSOP	Y
HMSOP	YE
TSOT	WT
SC-70	C

X Types

System Management Products (SMP)

X 5 32 3 S8 I Z - 4.5A T1

PREFIX
All Xicor Products

INTERFACE
4: 2-Wire Interface
5: SPI Interface

EEPROM MEMORY SIZE
00: 0kb
02: 2kb
04: 4kb
08: 8kb
16: 16kb
32: 32kb
64: 64kb
28: 128kb
56: 256kb

RESET POLARITY
0: Active High
1: Active Low
3: Active Low
4: Active High
5: Active High
7: Active High
8: Active Low
9: Active High

PACKAGE DESIGNATOR
P: PDIP
S: SOIC
V: TSSOP
M: MSOP
Q: QFN
#: Number of Pins

TEMPERATURE RANGE
(blank): Commercial 0°C to +70°C
I: Industrial -45°C to +85°C

PB-FREE OPTION
Z: Pb-Free Product
ZA: Pb-Free with Anneal

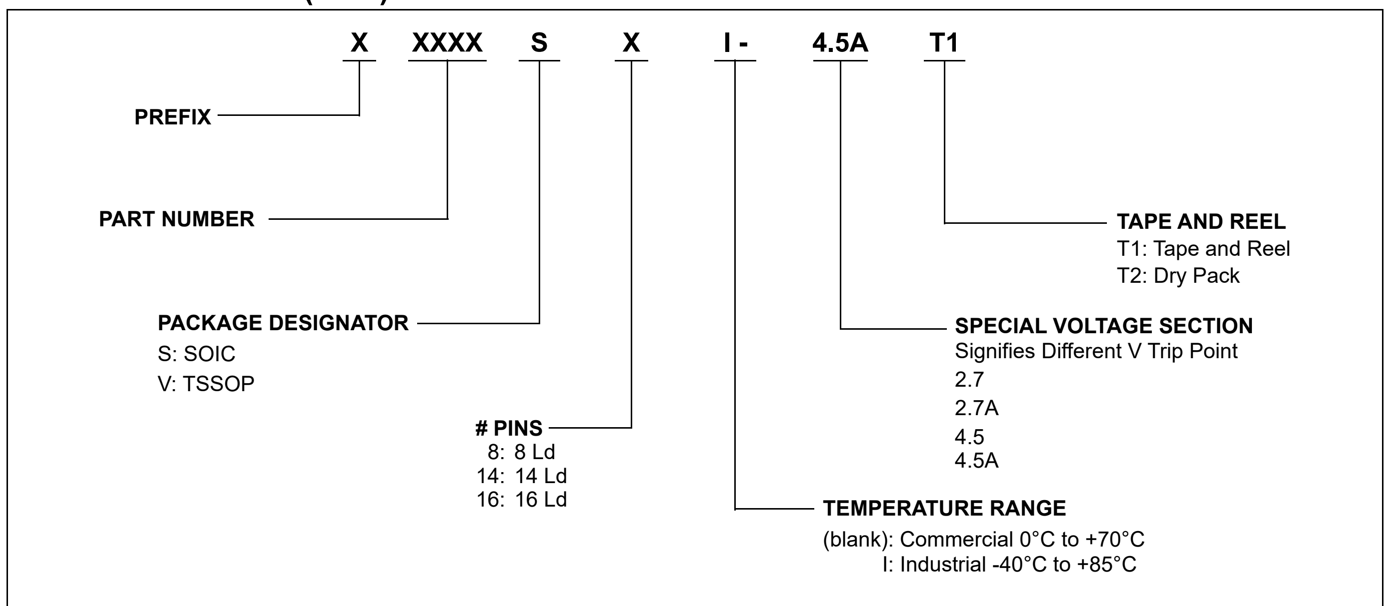
VOLTAGE TRIP POINT
2.7: 2.62V
2.7A: 2.85V or 2.92V
4.5A: 4.63V
(Blank): 4.38V or Other
A: Other
B: Other
C: Other

TAPE AND REEL
T1: Tape and Reel
T2: Dry Pack

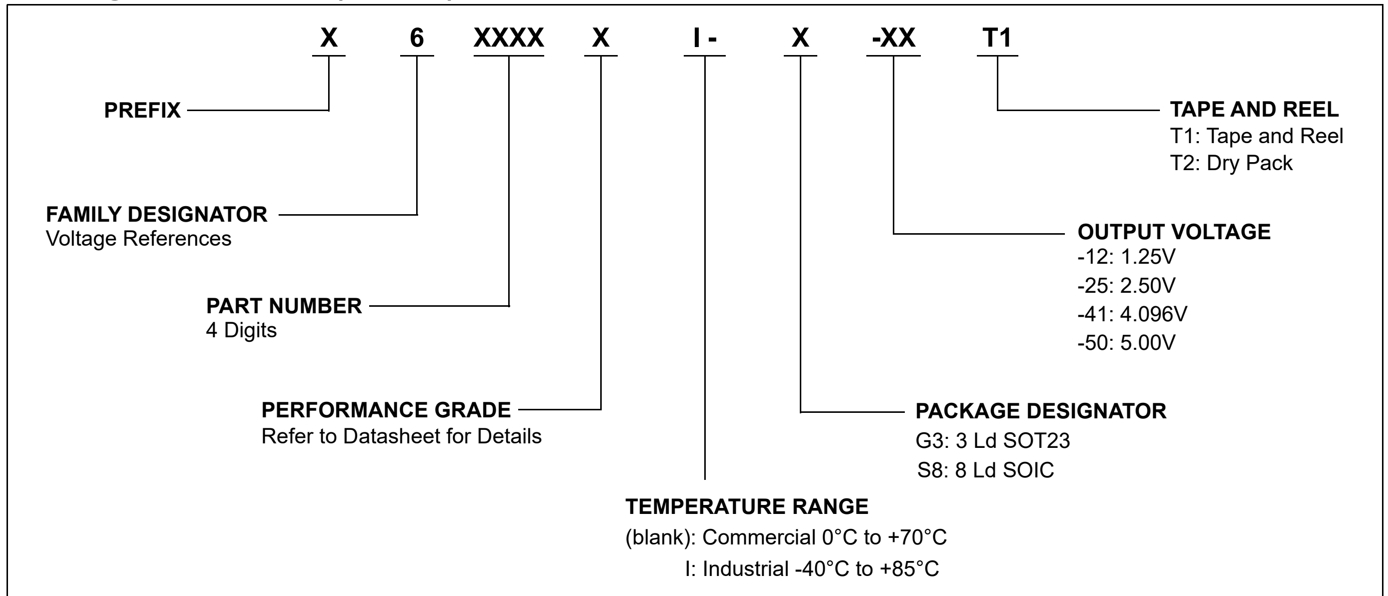
EXCEPTIONS TO RESET POLARITY
X40015
X40231
X40233
X40035

EXCEPTIONS TO EEPROM MEMORY SIZE
X40626
X40030
X40031
X40034
X40035
X4C105

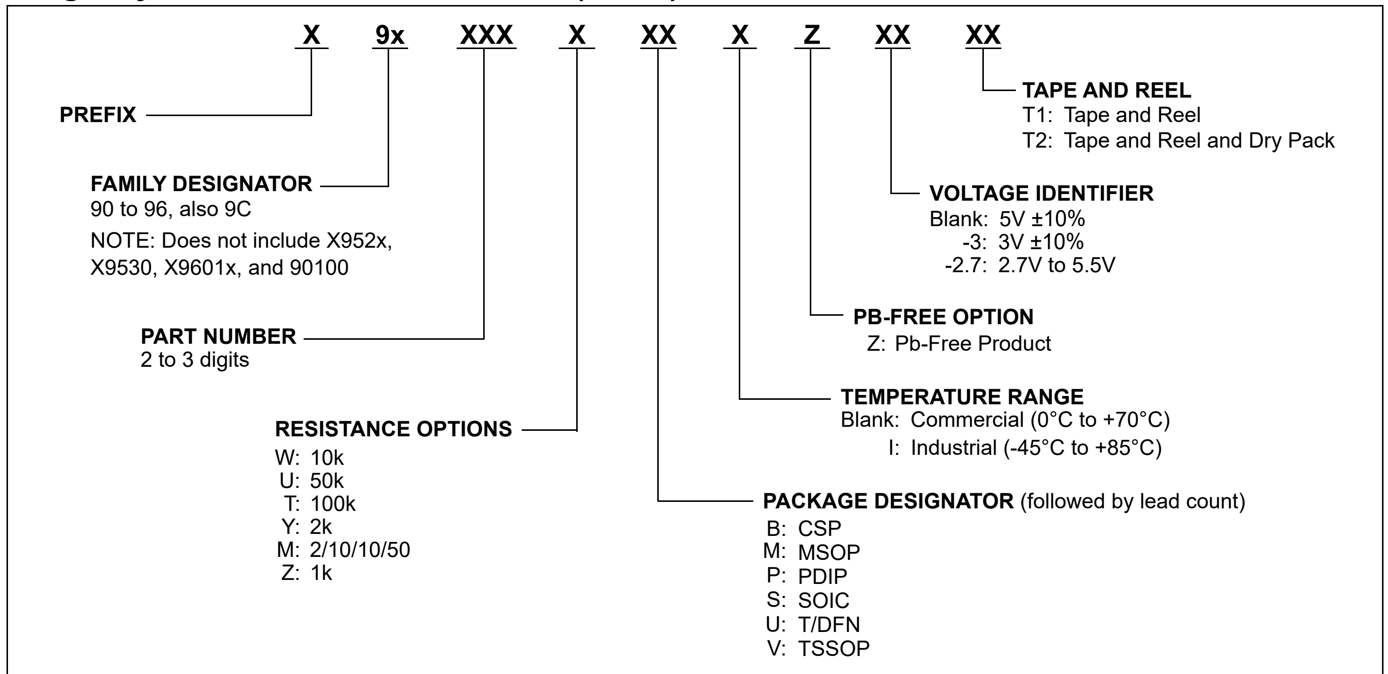
Real Time Clocks (RTC)



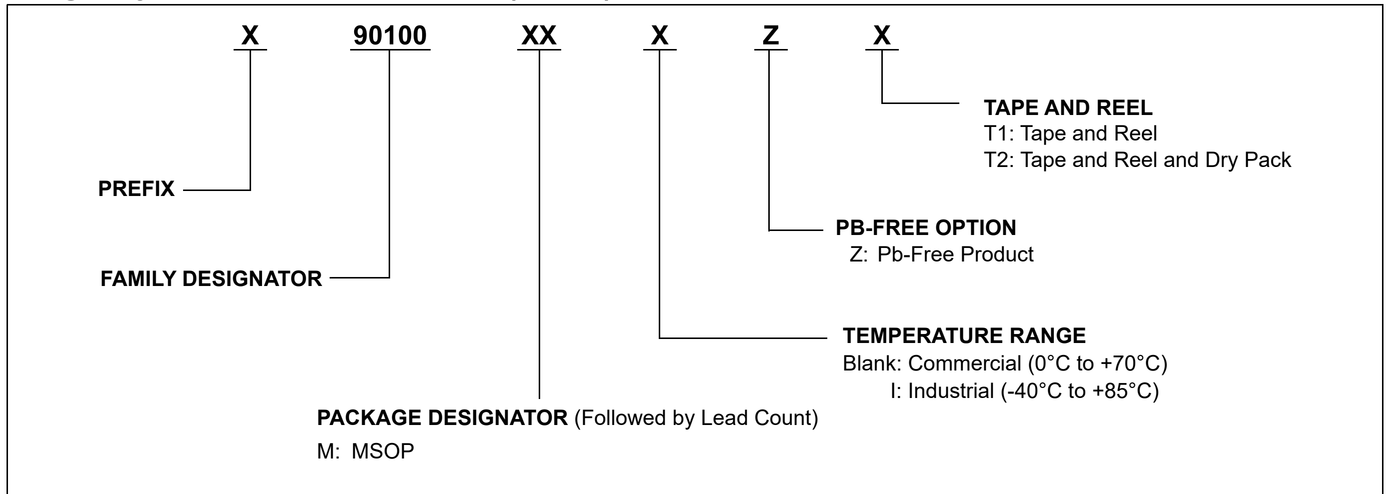
Voltage References (VREFs)



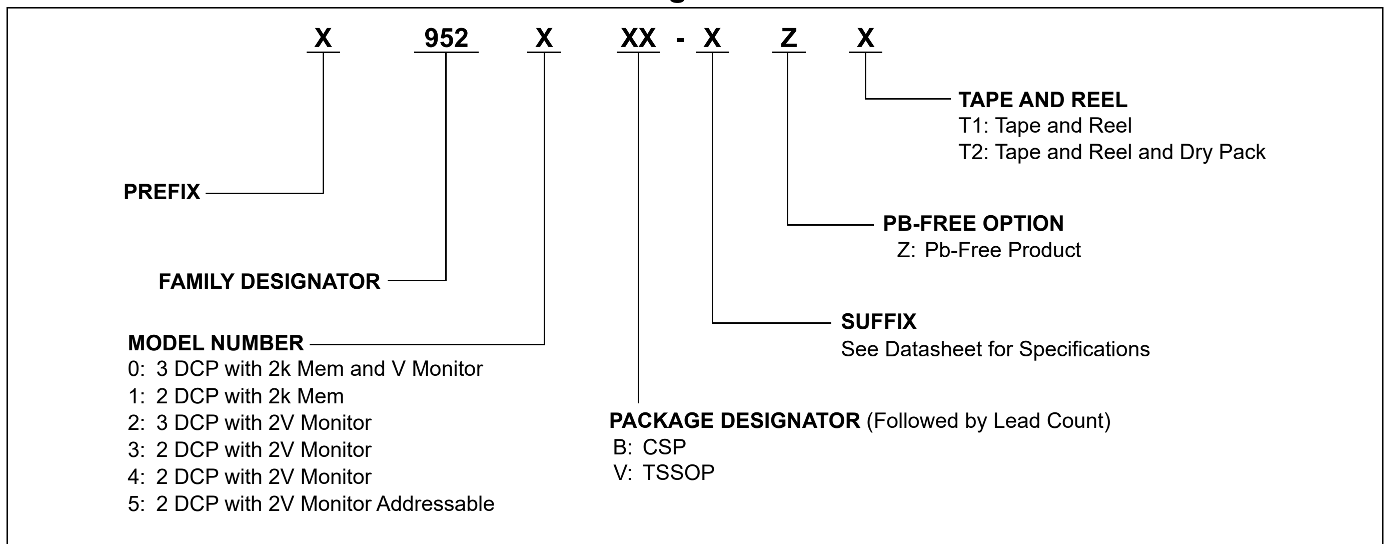
Digitally Controlled Potentiometers (DCPs)



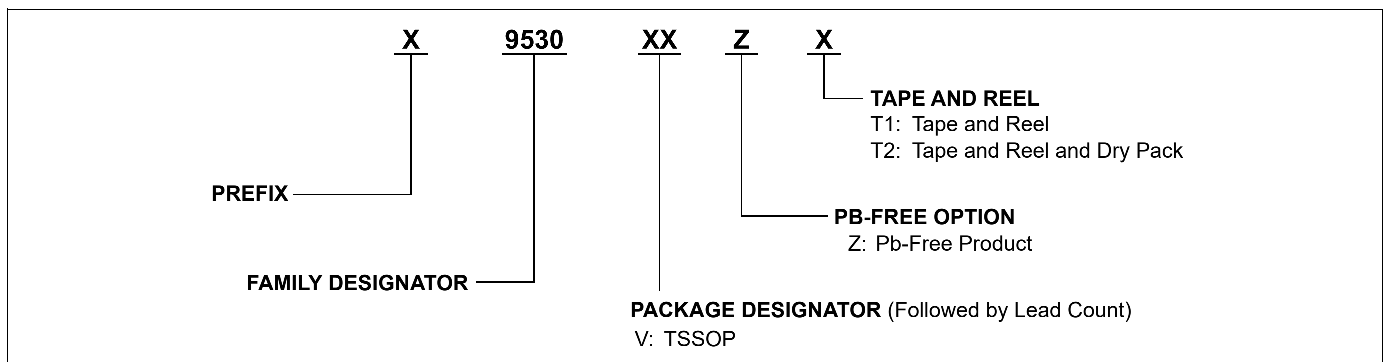
Digitally Controlled Capacitors (DCCs)



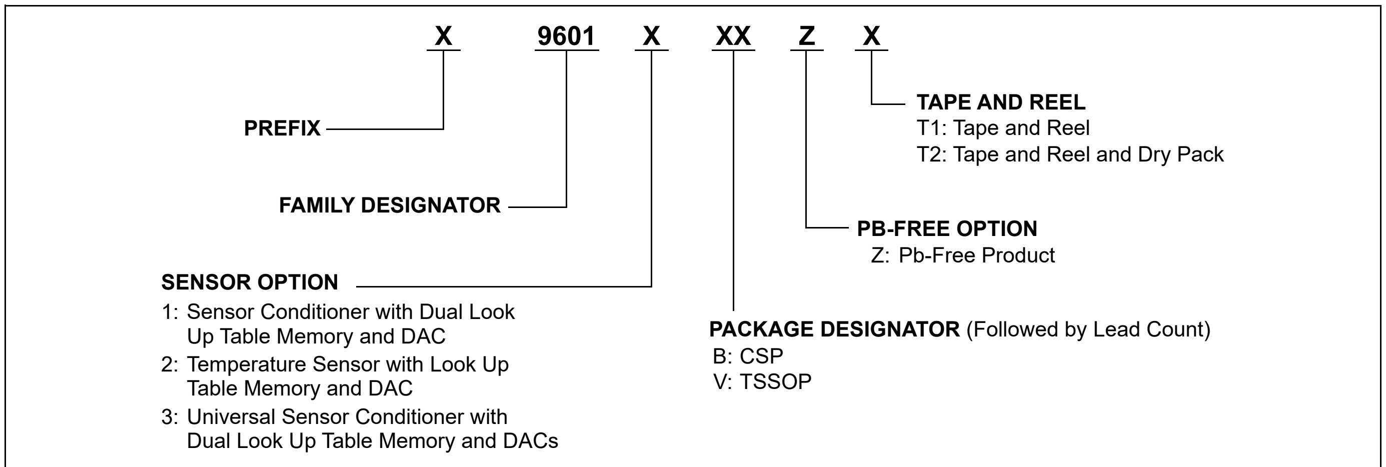
Bias and Control for Laser Diode with Integrated DCP



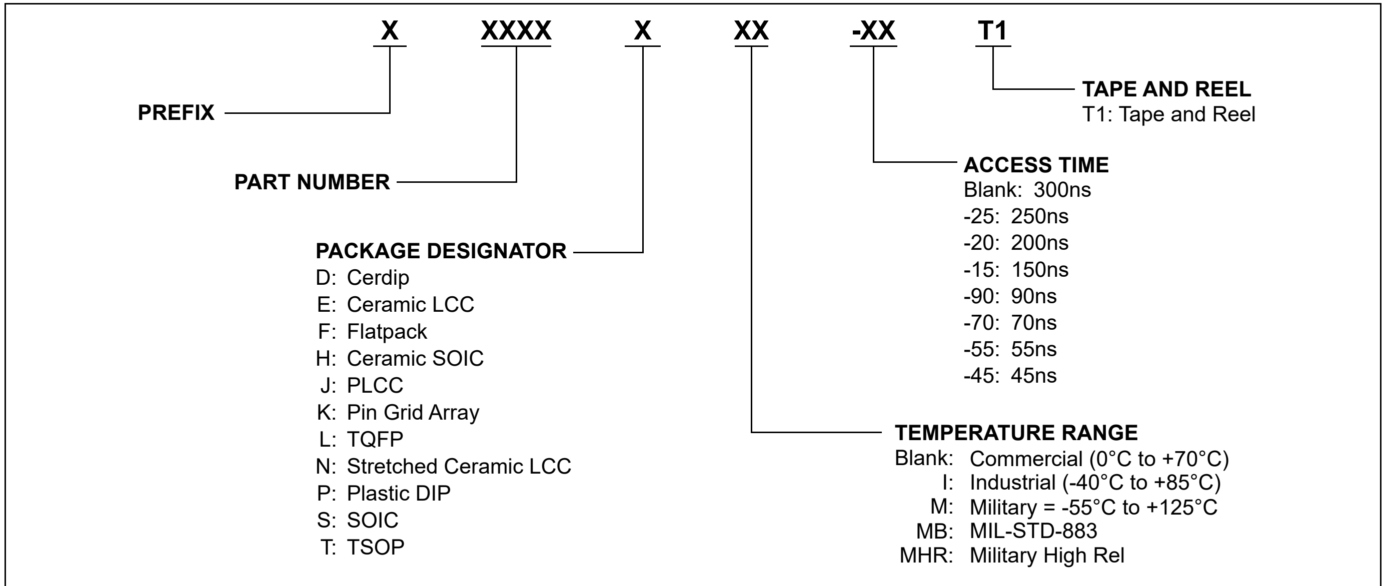
Bias and Control for Laser Diode



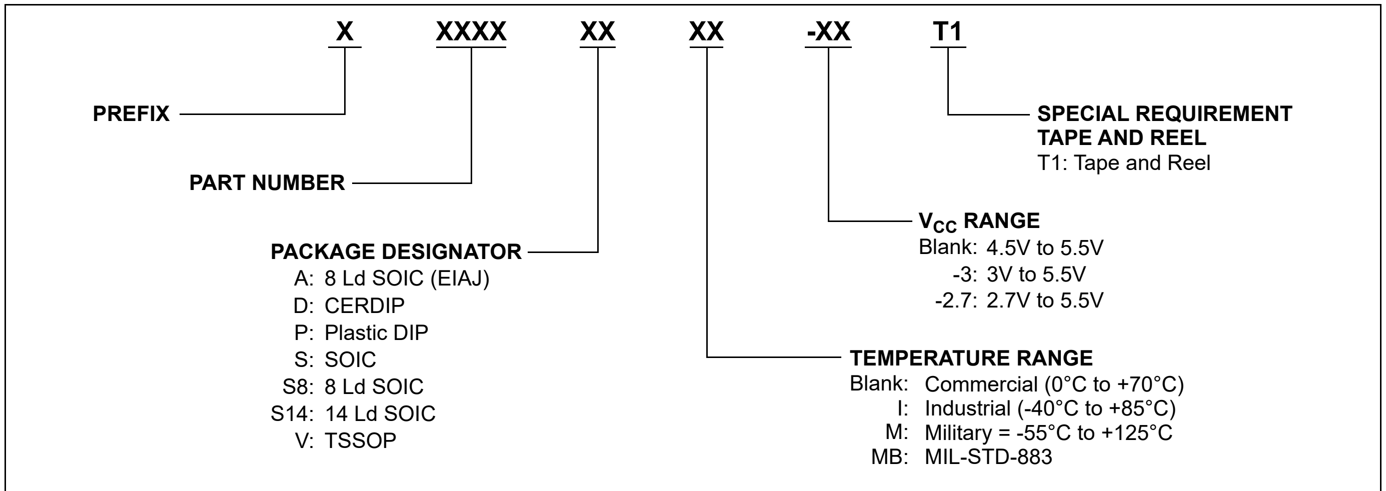
General Purpose Sensor Conditioners with Look-Up Table Memory



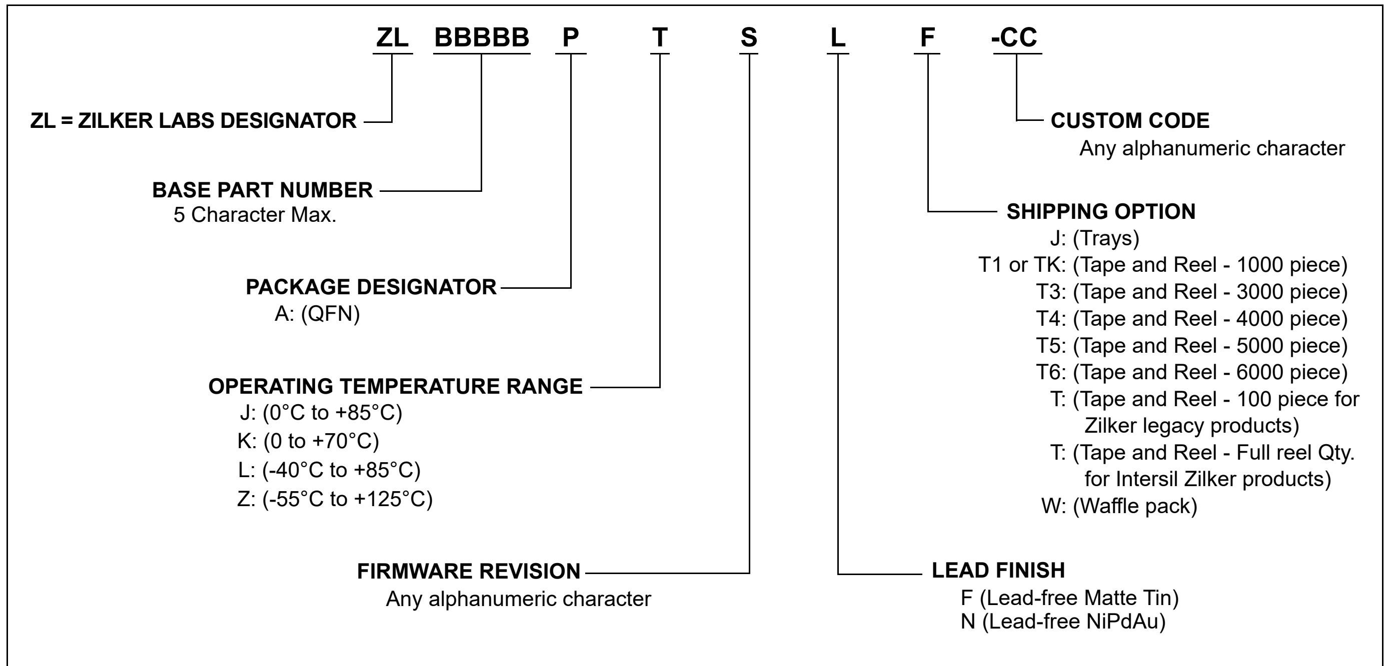
Parallel E^{2}PROM



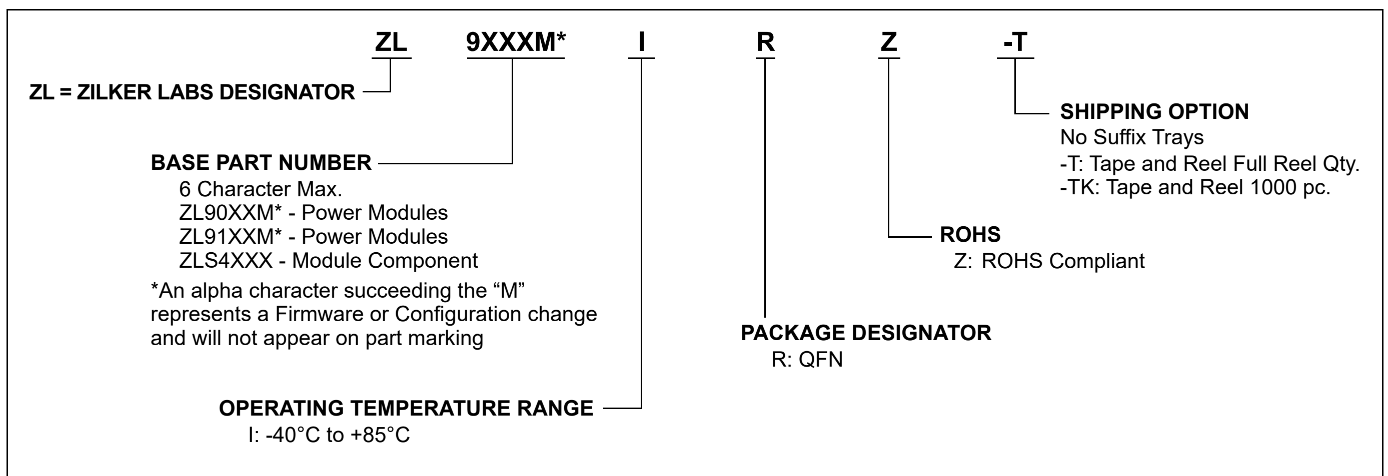
Serial E^{2}PROM



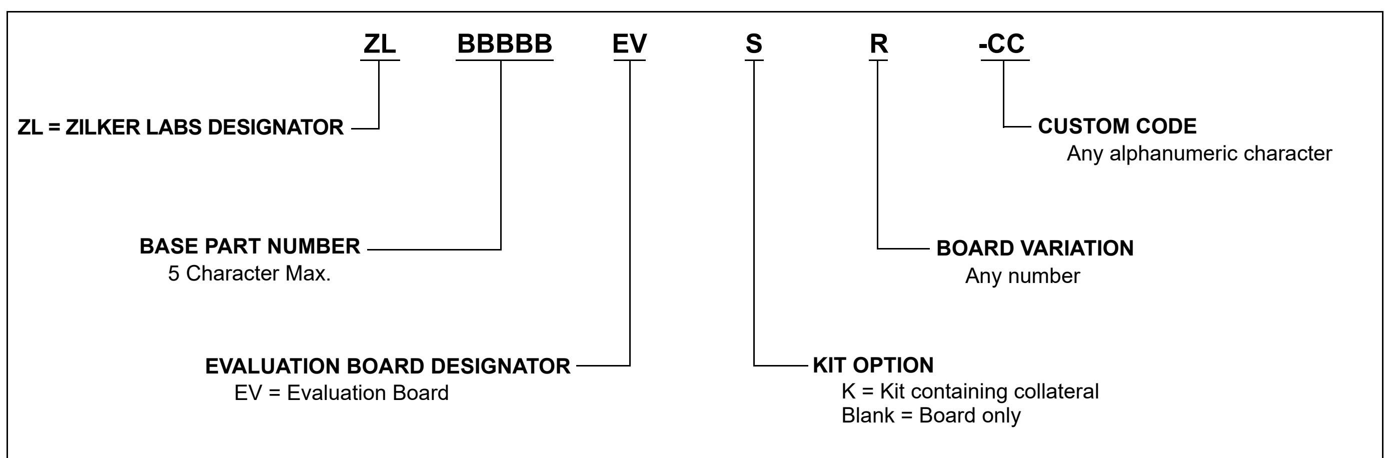
ZL Types



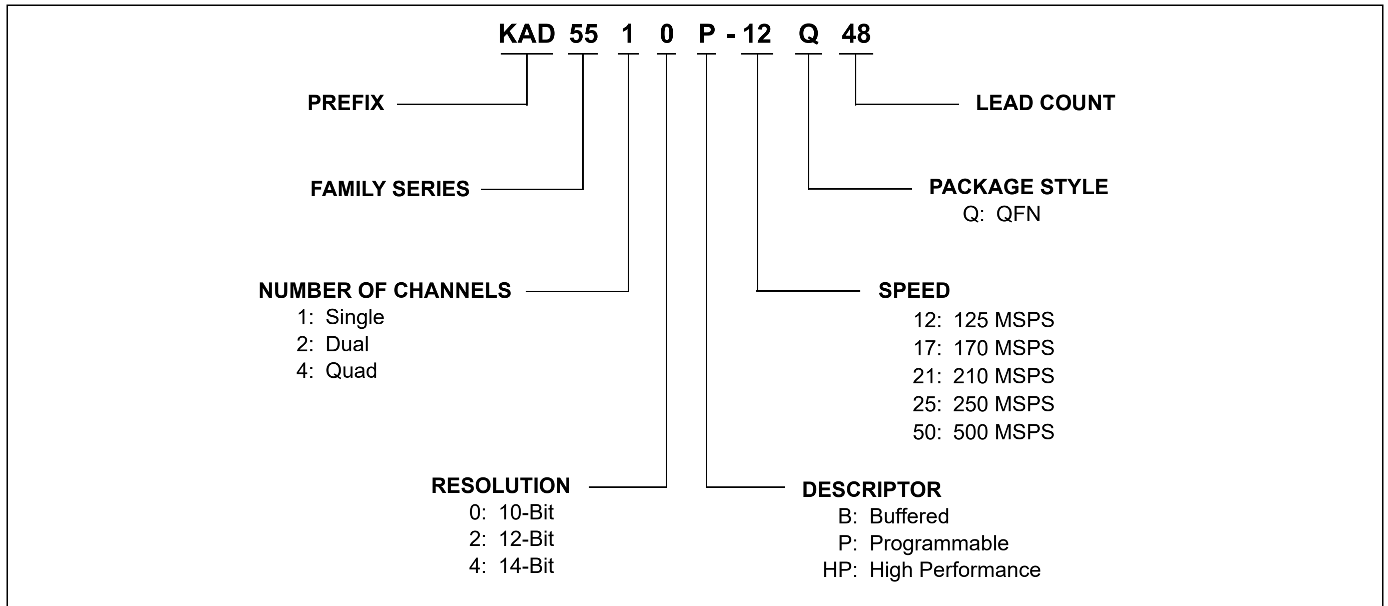
ZL Power Modules



ZL Evaluation Boards

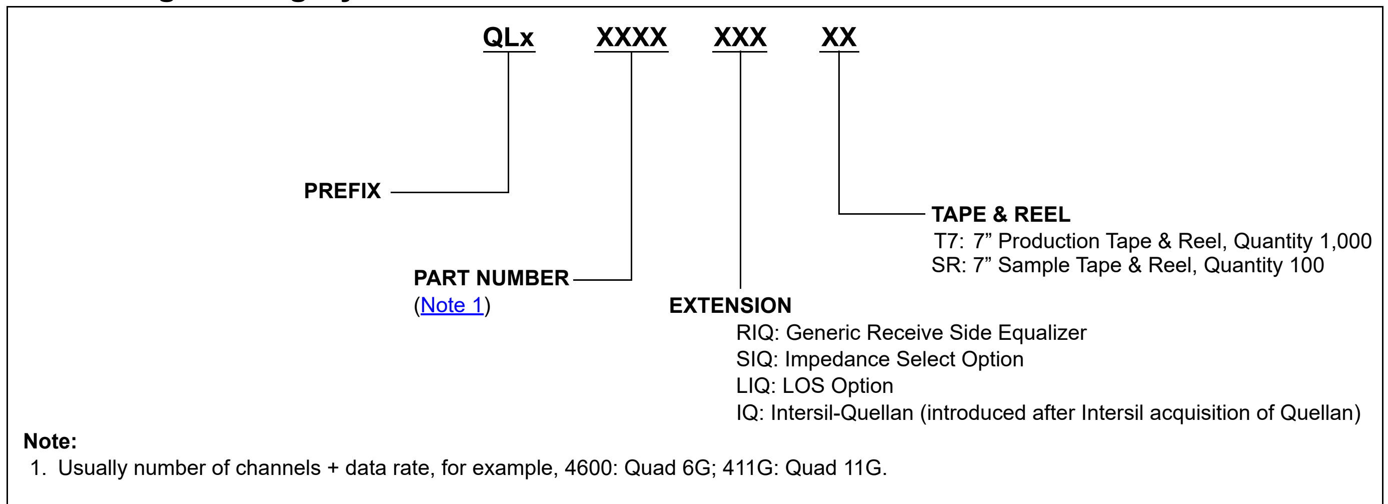


KAD Types



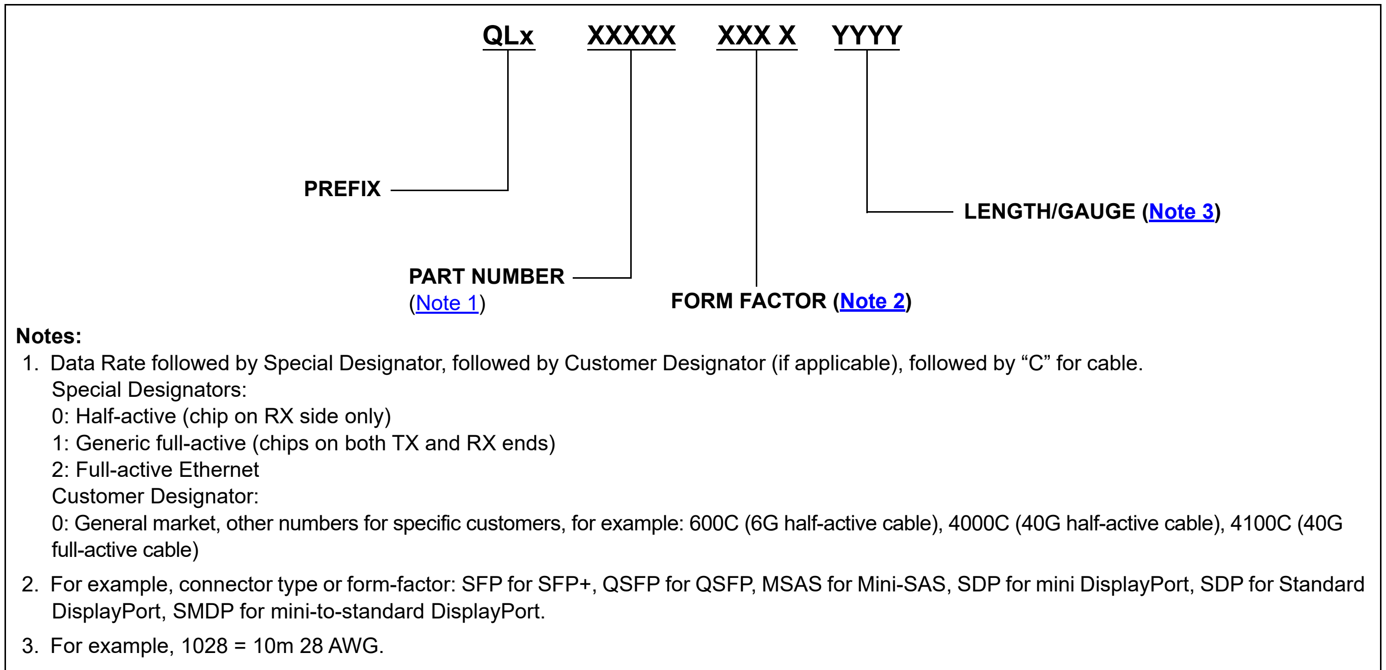
QLx Types

Wired Signal Integrity Parts



Note:
1. Usually number of channels + data rate, for example, 4600: Quad 6G; 411G: Quad 11G.

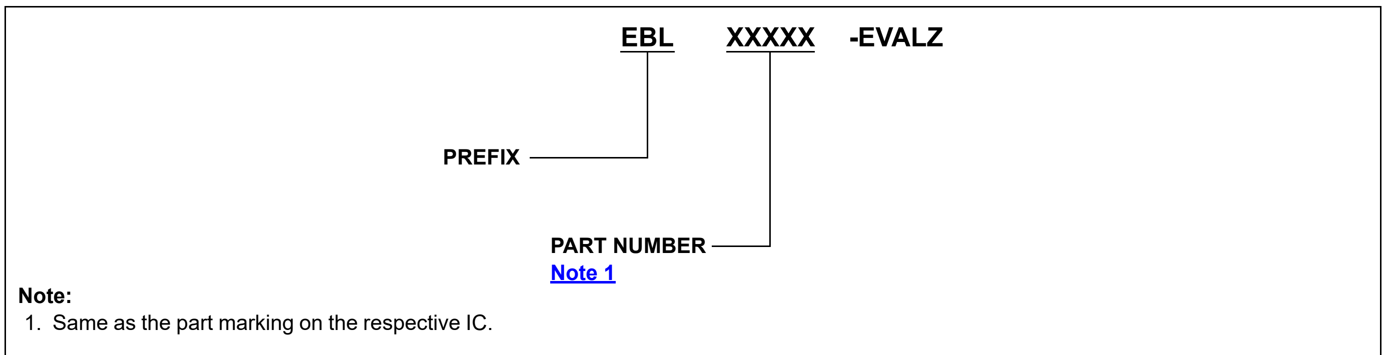
Active Cables



Notes:

1. Data Rate followed by Special Designator, followed by Customer Designator (if applicable), followed by "C" for cable.
   Special Designators:
   0: Half-active (chip on RX side only)
   1: Generic full-active (chips on both TX and RX ends)
   2: Full-active Ethernet
   Customer Designator:
   0: General market, other numbers for specific customers, for example: 600C (6G half-active cable), 4000C (40G half-active cable), 4100C (40G full-active cable)
2. For example, connector type or form-factor: SFP for SFP+, QSFP for QSFP, MSAS for Mini-SAS, SDP for mini DisplayPort, SDP for Standard DisplayPort, SMDP for mini-to-standard DisplayPort.
3. For example, 1028 = 10m 28 AWG.

QL Evaluation Boards

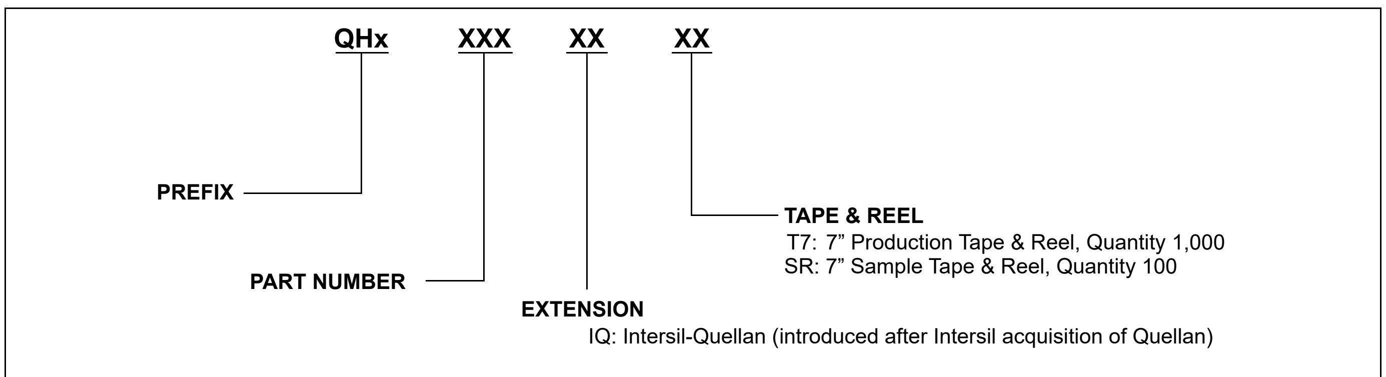


Note:

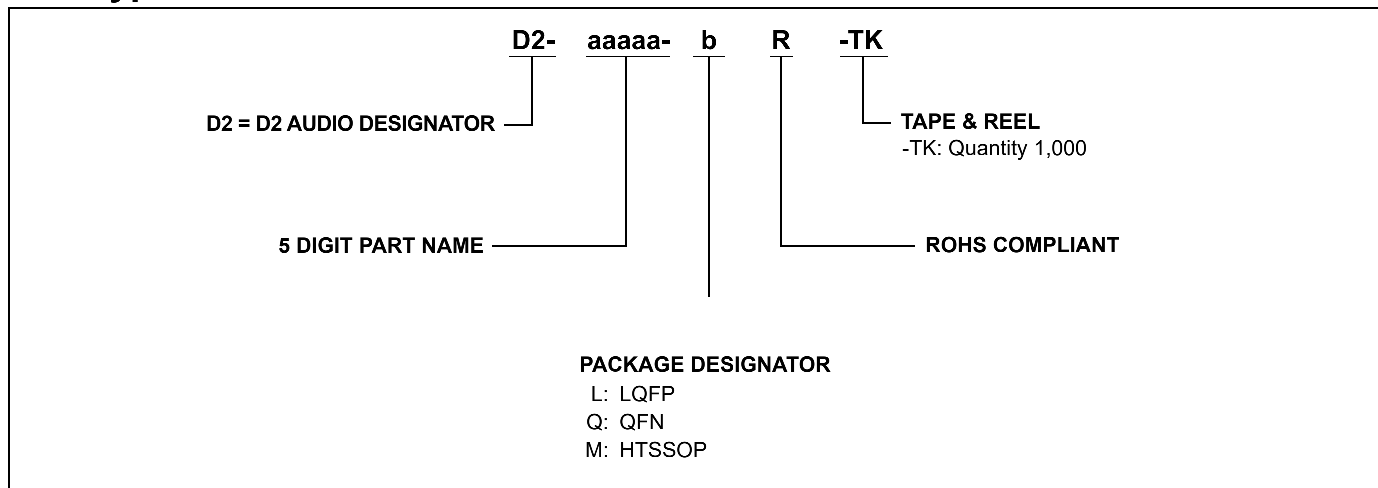
1. Same as the part marking on the respective IC.

QHx Types

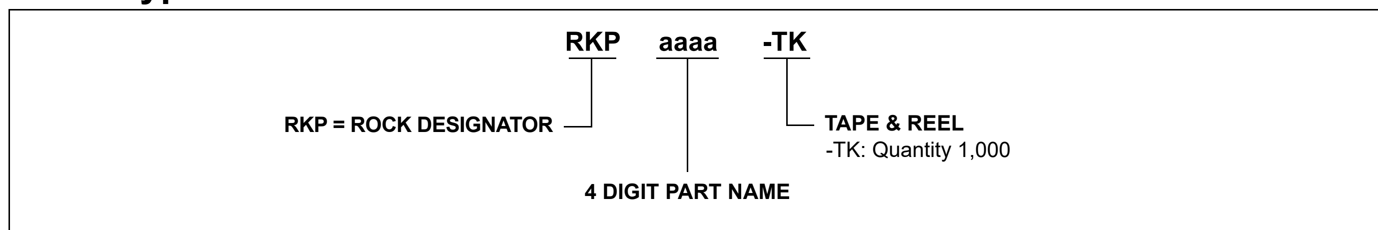
Wireless Noise Cancellation Parts



D2 Types



RKP Types



TW Types

TW aaaa bb - c d e f g# - h j k l

PREFIX — TW

DEVICE NUMBER — aaaa

bb:
AT: Auto Wafer
EP: Epi Wafer

c - PROCESS
This character is included in the marking of legacy products only.

PROCESS	CODE
TSMC, 0.35µm, Polycide, SPQM or SPTM Logic	A
TSMC, 0.25µm	B
X-FAB, 0.25µm	C
TSMC, 0.18µm	D
X-FAB, 0.18µm	E
TSMC, 0.18µm, EPI, Ar Anneal, Hi	G
Goyatek/Vanguard, 0.25µm	H
TSMC 0.25µm EPI, Ar Anneal, Hi	J
TSMC 0.18µm Automotive Process	K
TSMC 0.13µm	M
TSMC 90nm	N
Fujitsu 90nm	P
TSMC 0.13µm 12” Wafer	Q
TSMC 65nm	R
TSMC 45nm	S

d - ASSEMBLY VENDOR
This character is included in the marking of legacy products only.

ASSEMBLY VENDOR	CODE
ASEK	A
ASECL	B
GAPT	C
i2a/IPAC, Quick Pak	D
SPIL	E
ChipMOS	G
UTAC	J
Fujitsu	K
Amkor Korea	M

e -
Q: 12” Wafer

f - PACKAGE TYPE A

PACKAGE TYPE	CODE
BGA package	B
LQFP package	L
PQFP package	P
TQFP package	T
QFN package	N
PQFP package with Exposed Heat Spreader	E

g# - DIE REVISION
It starts from A1. If full layers are changed, the die revision changes like A1→B1→C1, etc.
If some layers are changed, the die revision changes like A1→A2→A3, etc.

h - PACKAGE TYPE B

PACKAGE TYPE	CODE
Green (Halogen Free) and Lead Free package	G (Note)
Normal package	N
Green (Halogen Free) and Lead Free package with Cu Bond Wires	C
Flip Chip	F

Note: The following FG’s also use Cu wire:
TW6815-LA1-GR
TW6816-LA1-GR
TW6817-LA1-GR
TW6818-LA1-GR
TW6932-LA1-GR

j - PACKAGE TYPE C

PACKAGE TYPE	CODE
Drop-in heat spreader	D
Exposed heat spreader	E
Regular package without heat spreader	R

k - PACKAGE VARIANT

PACKAGE VARIANT	CODE
This is only used when one product type is offered in 2 different sizes or lead counts of the same package style. The last FG# created will include the lead count.	128 (lead count)

l - OPTIONS
S = SLT
B = Burn-in
H = High Temp. Testing
I = Industrial
V = High Volt Testing
T = Tape & Reel Packing

5962 SMD/DLA - QML Types

5962 - XXXXX 0X X X X

SMD ID NUMBER
(Does Not Change) (ID Not Applicable in Earlier DLA Items)

TOTAL DOSE DESIGNATOR
-: Non-Rad Hard
M: 3krad(Si) L: 50krad(Si)
D: 10krad(Si) R: 100krad(Si)
P: 30krad(Si) F: 300krad(Si)

DRAWING NUMBER
(DLA and SMD)

DEVICE TYPE
(Paragraph 1.2.1 Of SMD/DLA Drawing)

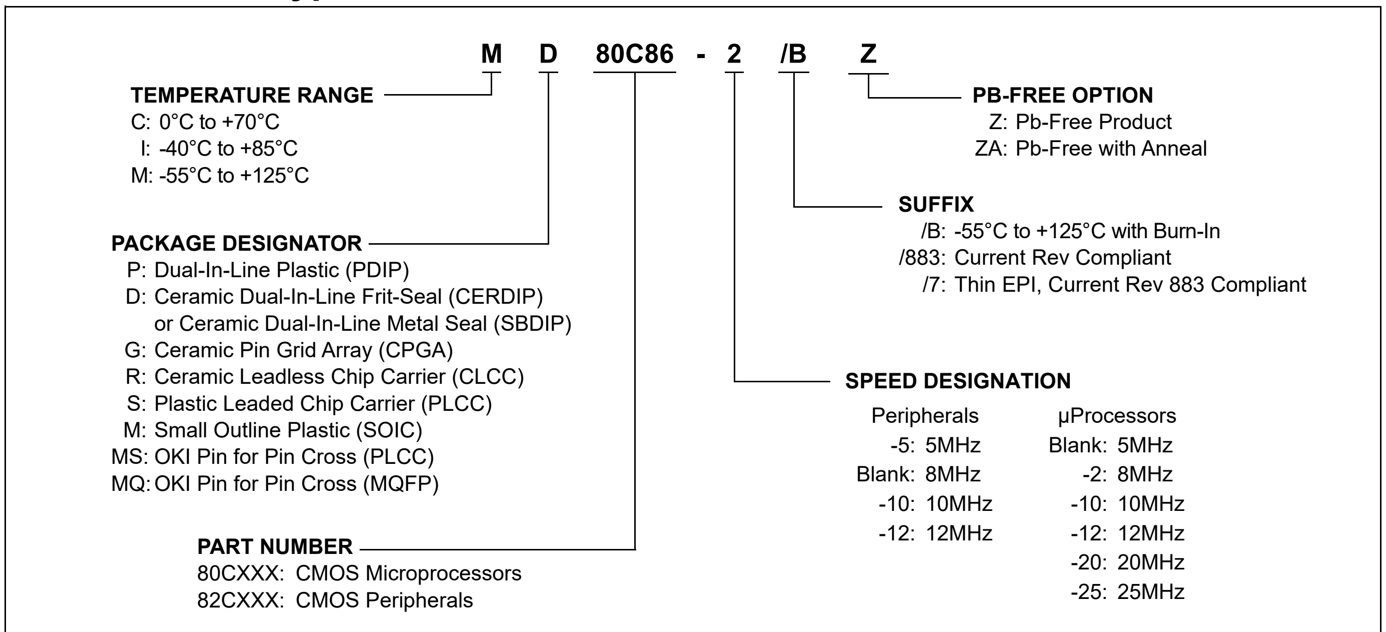
DEVICE CLASS DESIGNATOR
(If Applicable)
Q: QML Class Q (MIL-PRF-38535)
M: QML Class B (MIL-STD-883)
V: QML Class V, (MIL-PRF-38535)
N: Non-Traditional Packages and Temp Ranges (i.e., Plastic Packages, -40°C to +85°C Temperature Range)
T: QML Class T, Star*Lite Flow

CASE OUTLINE
Case Outlines are Listed in the Specific SMD and Detailed in MIL-STD-1835, Section 4.

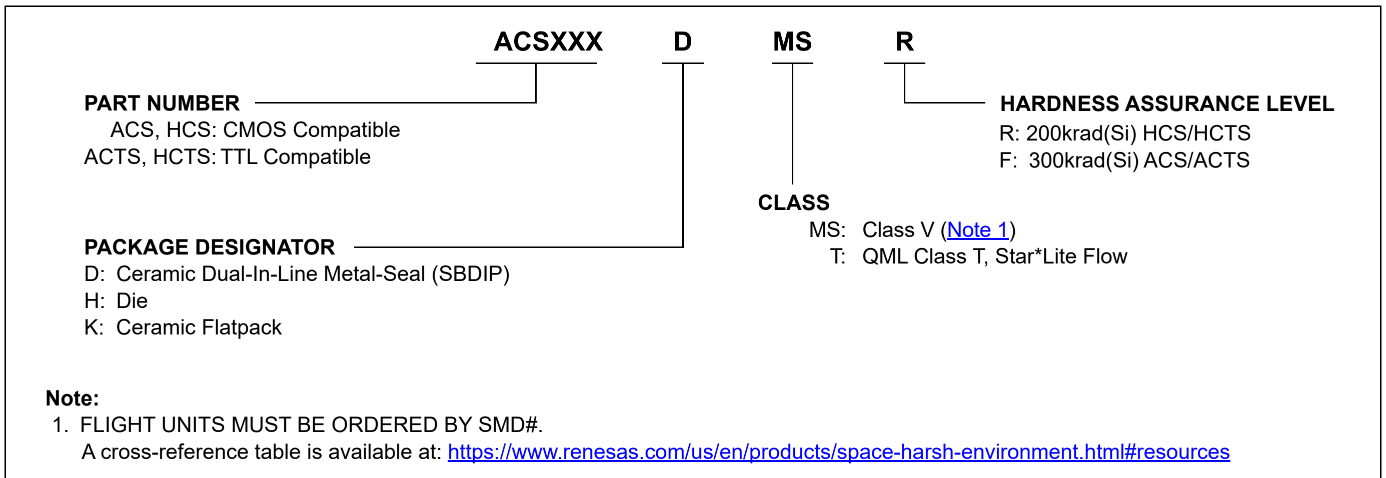
LEAD FINISH
A: Solder Dip
C: Gold

Note: Nomenclature Per MIL-PRF-38535

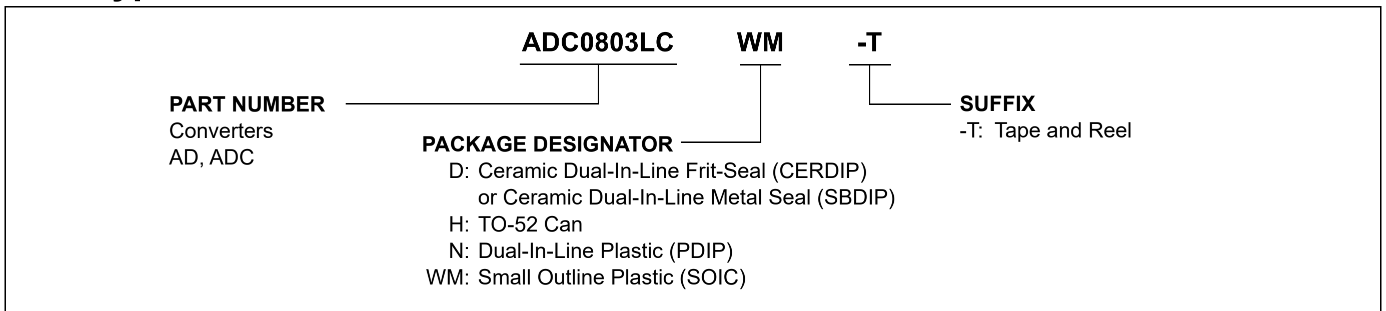
80C, 82CXXX Types



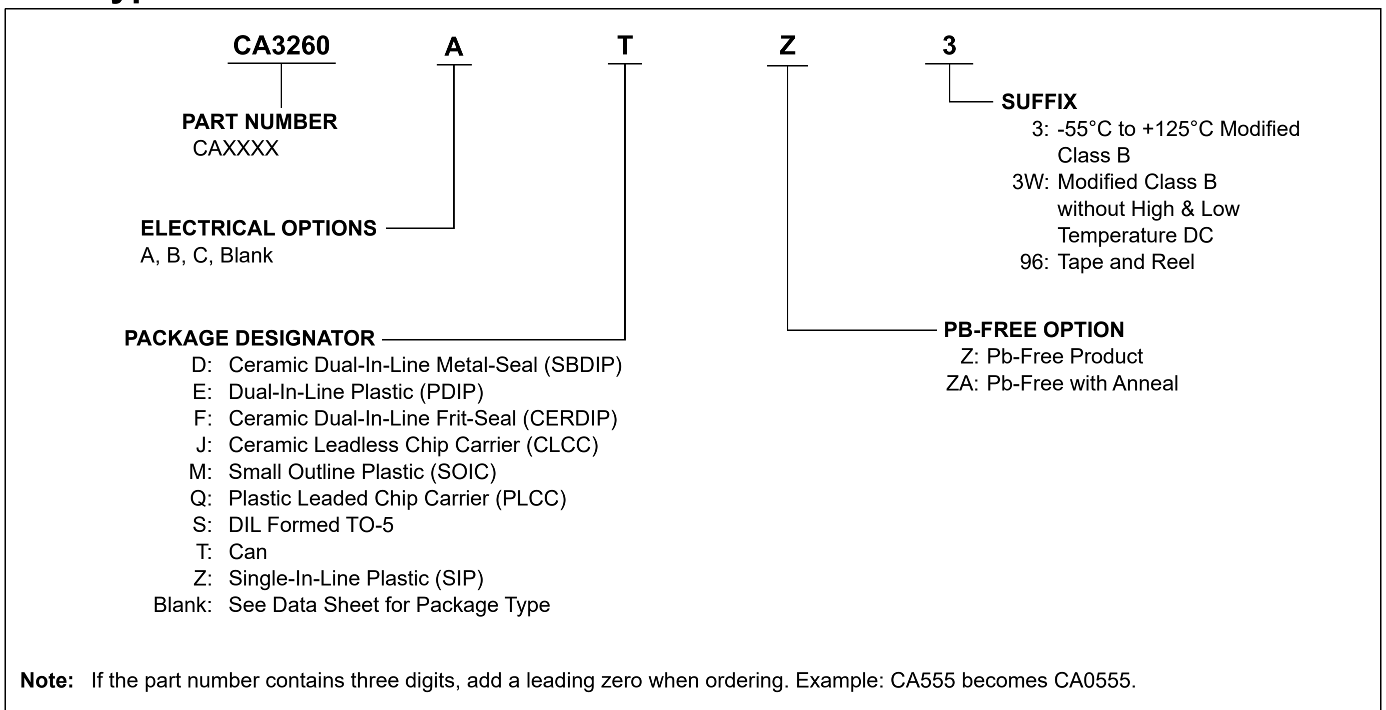
ACS, ACTS, HCS, HCTS Radiation Hardened Types



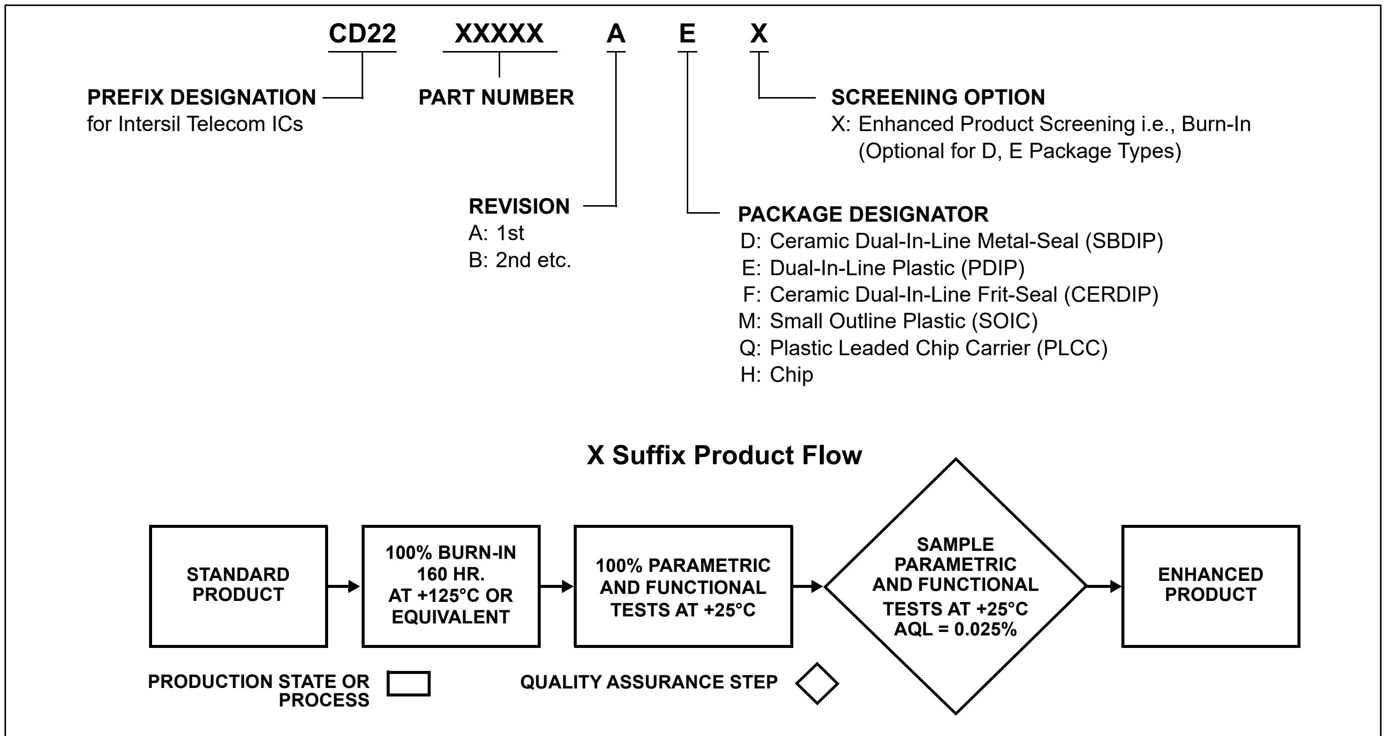
AD Types



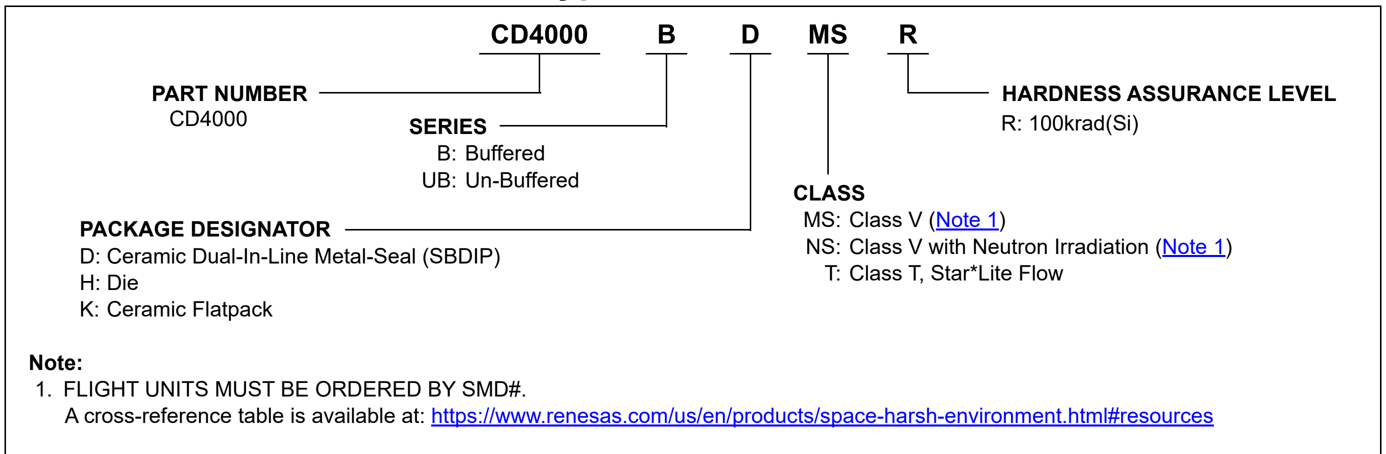
CA Types



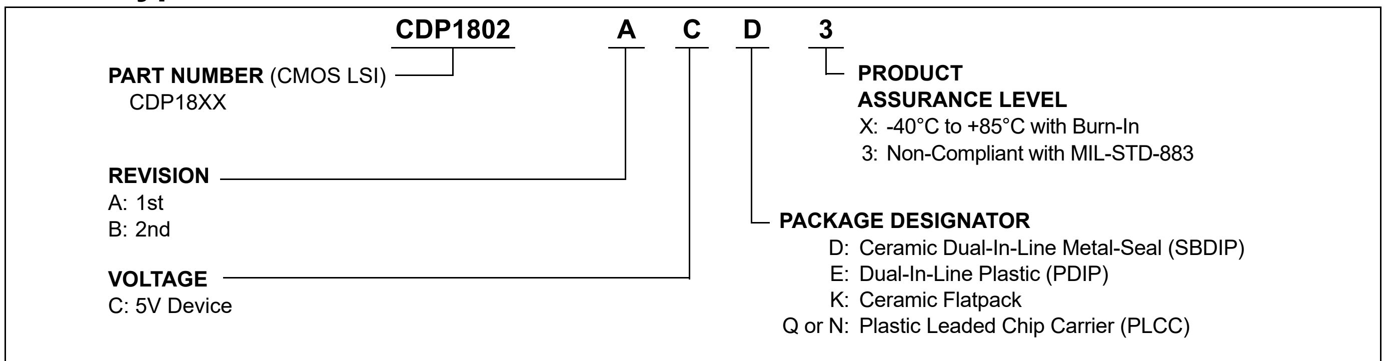
CD22XXX Types



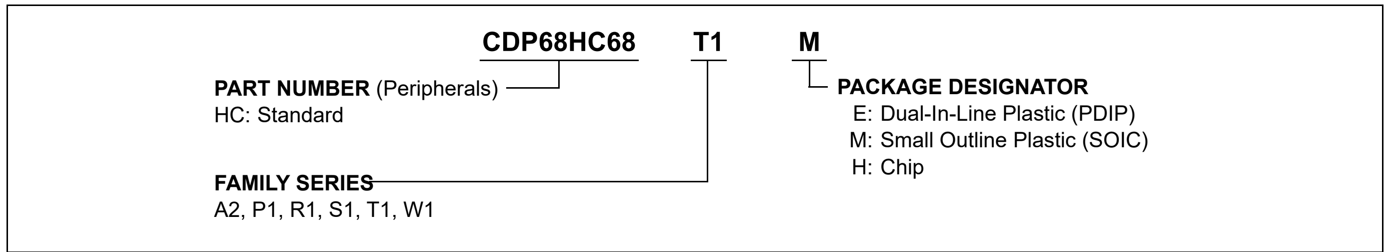
CD4000 Radiation Hardened Types



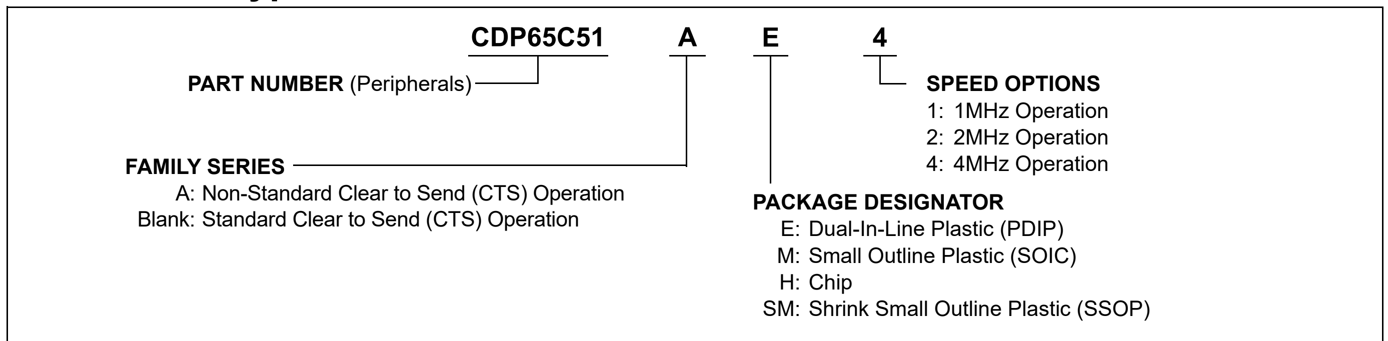
CDP Types



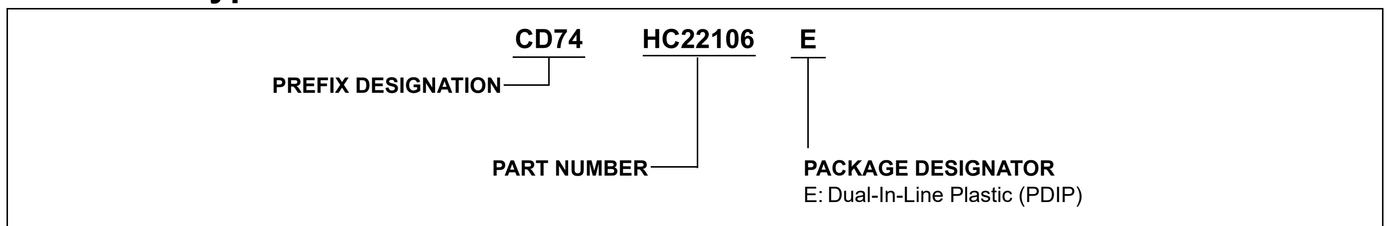
CDP68HC68 Types



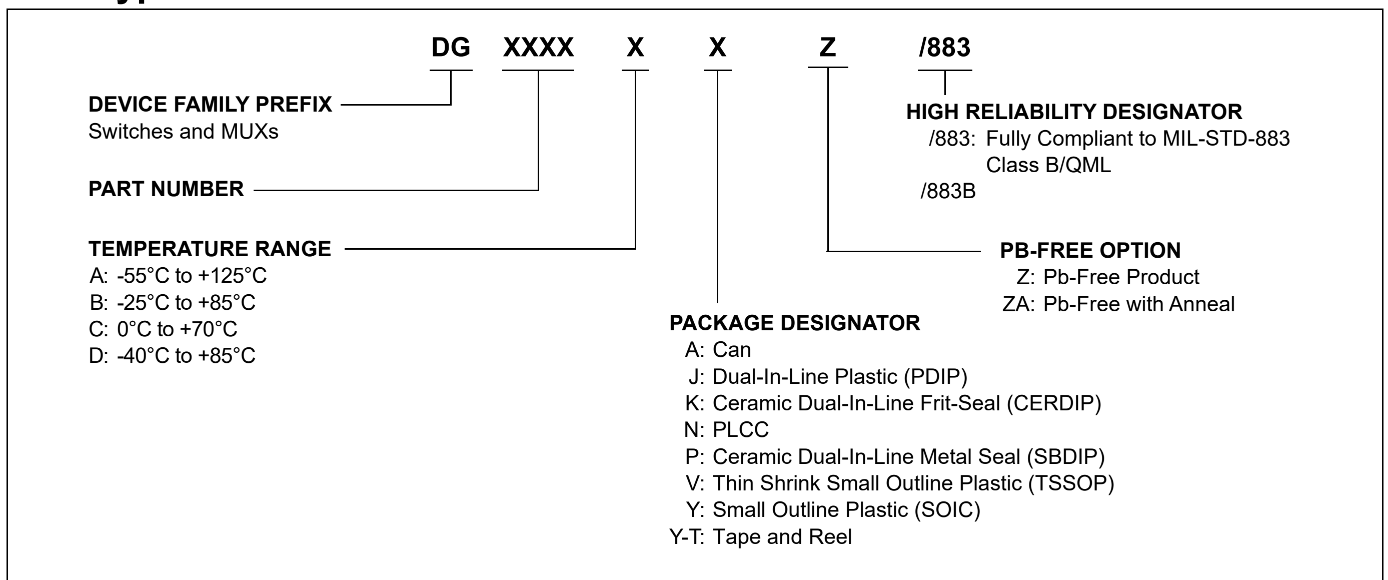
CDP65C51 Types



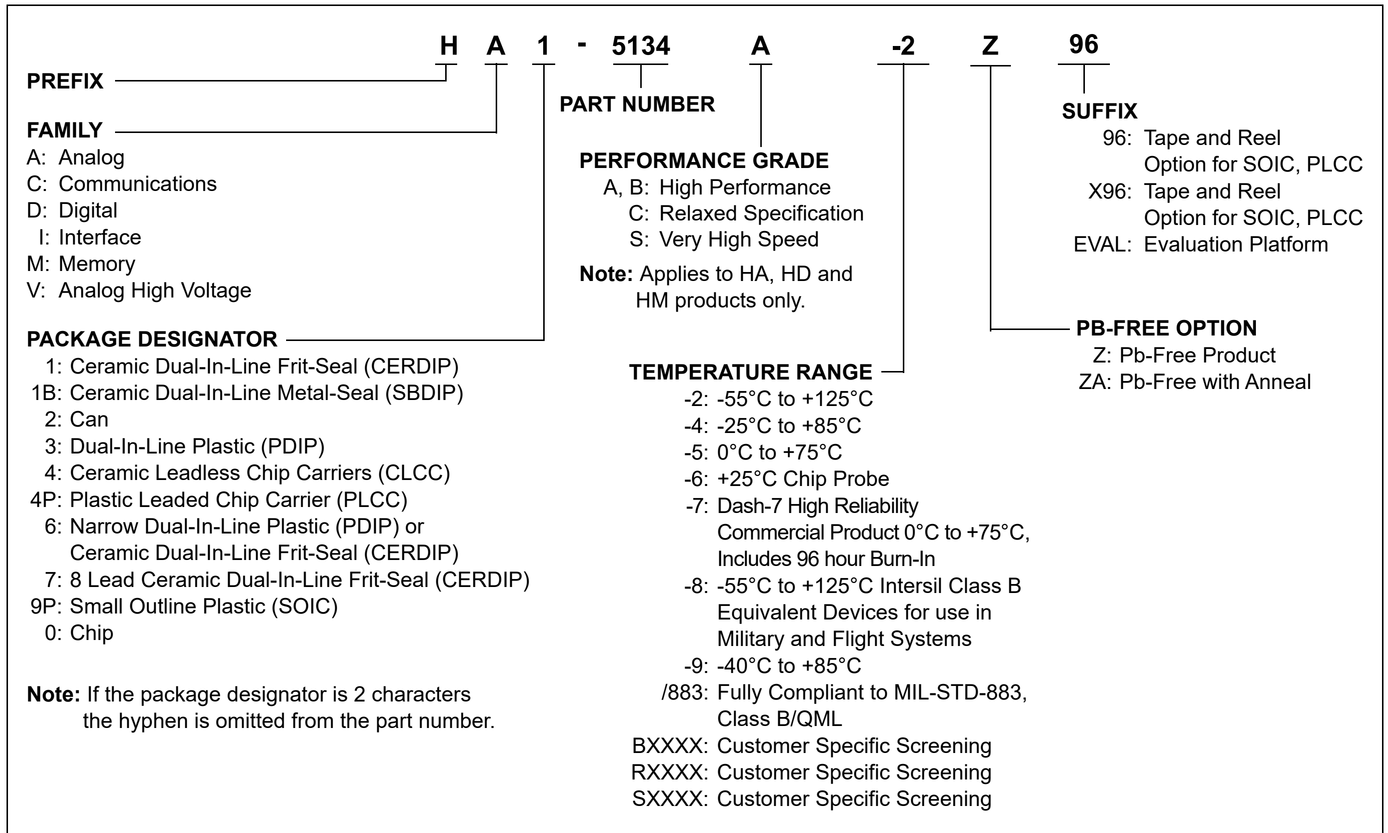
CD74HC Types



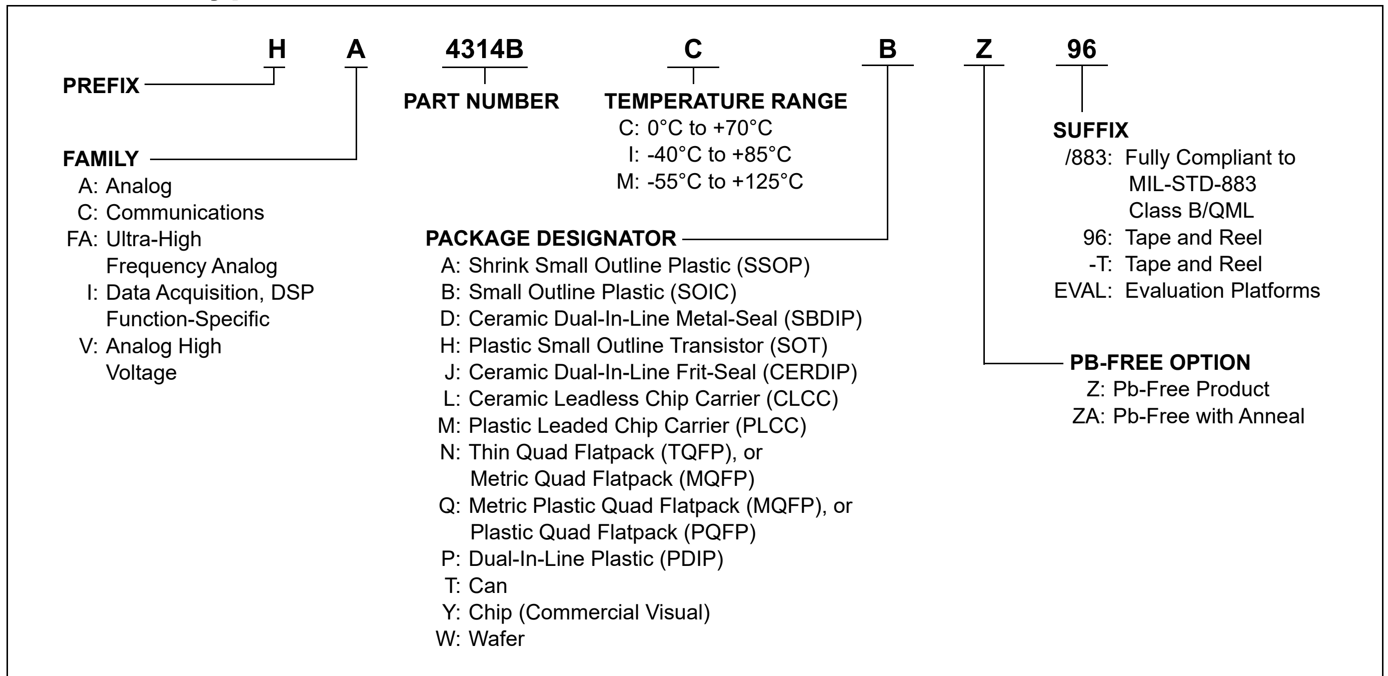
DG Types



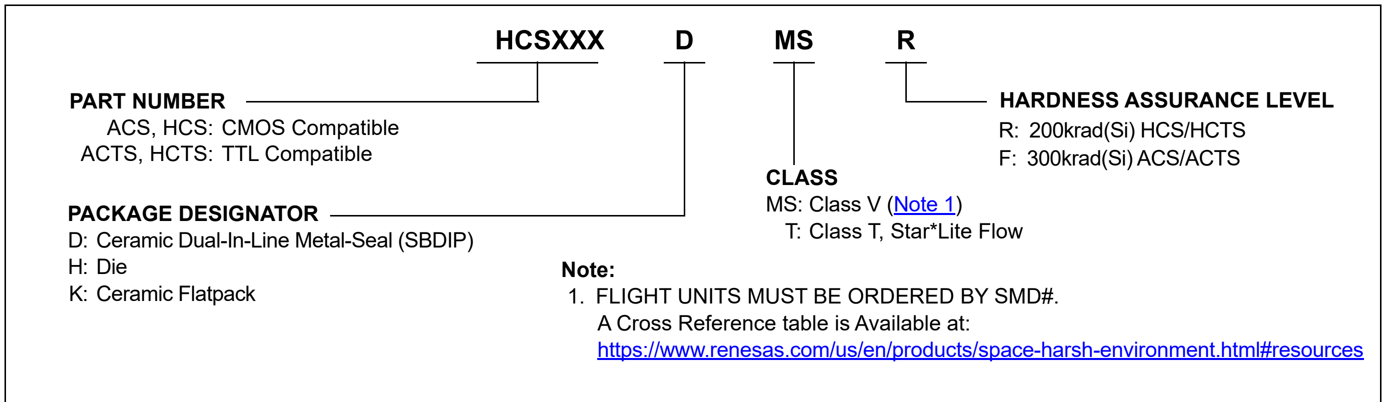
HX Types



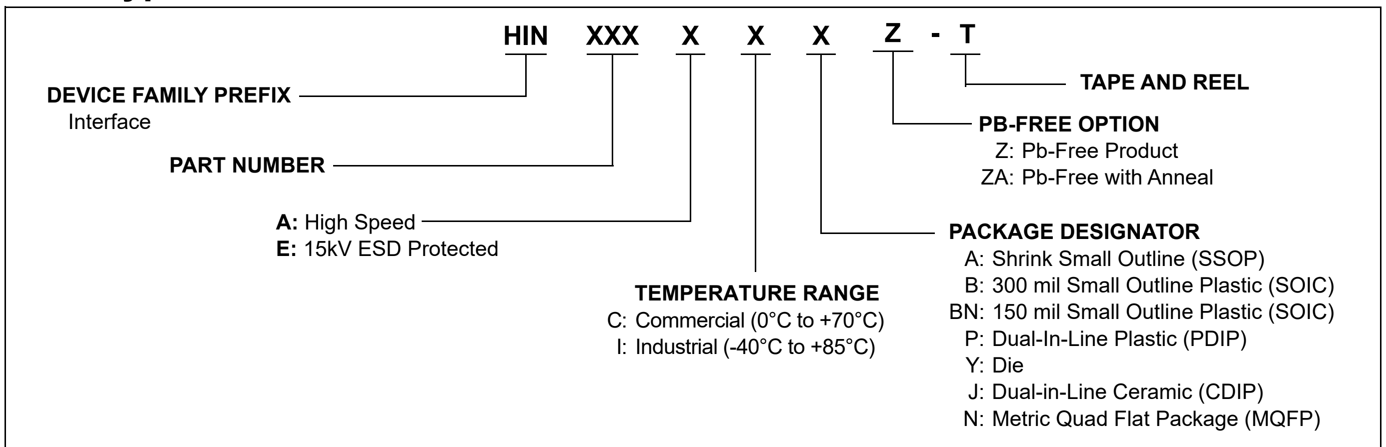
HX, HXX Types



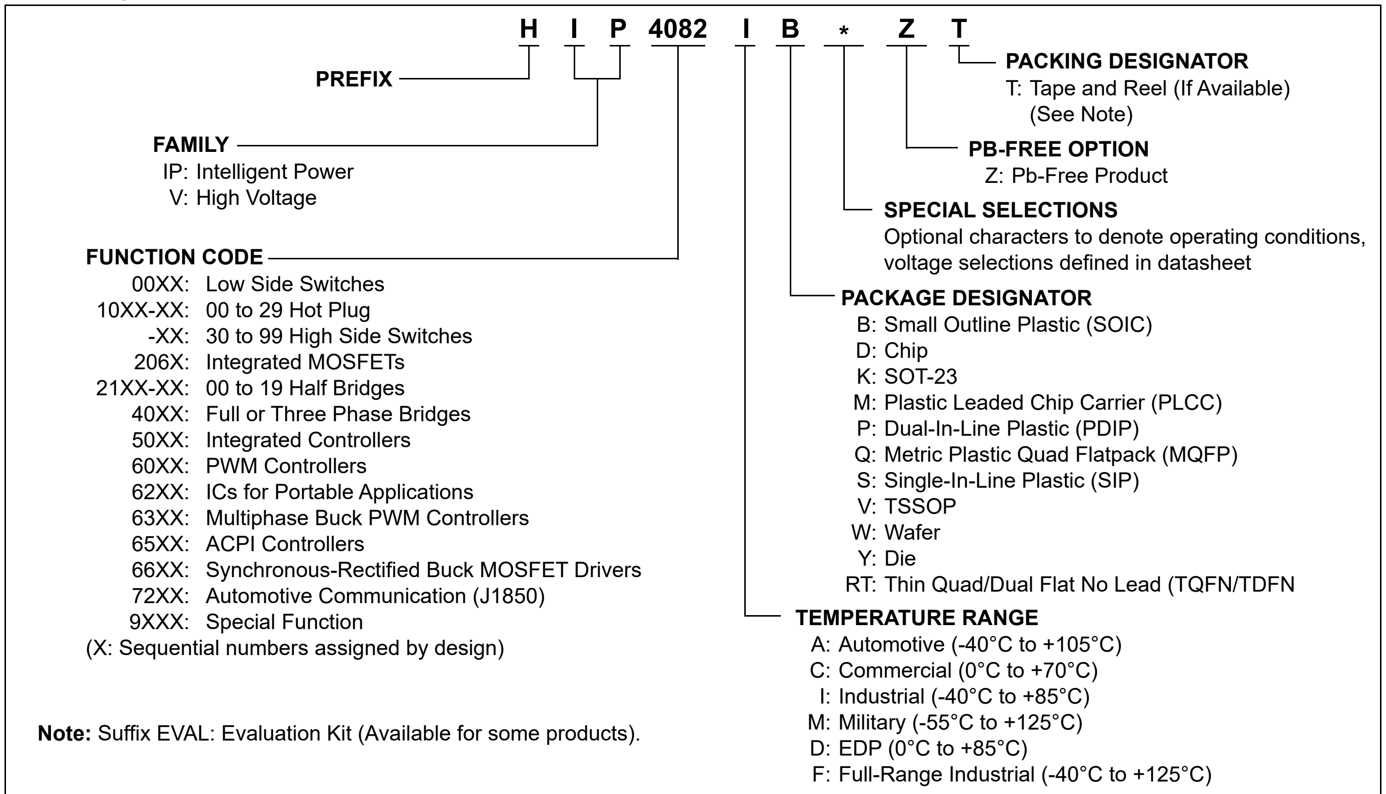
HCS, HCTS, ACS, ACTS, Radiation Hardened Types



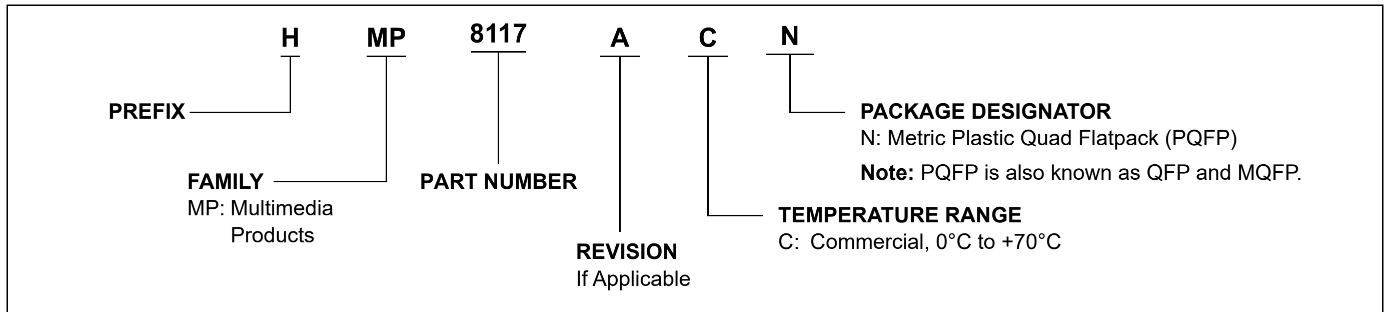
HIN Types



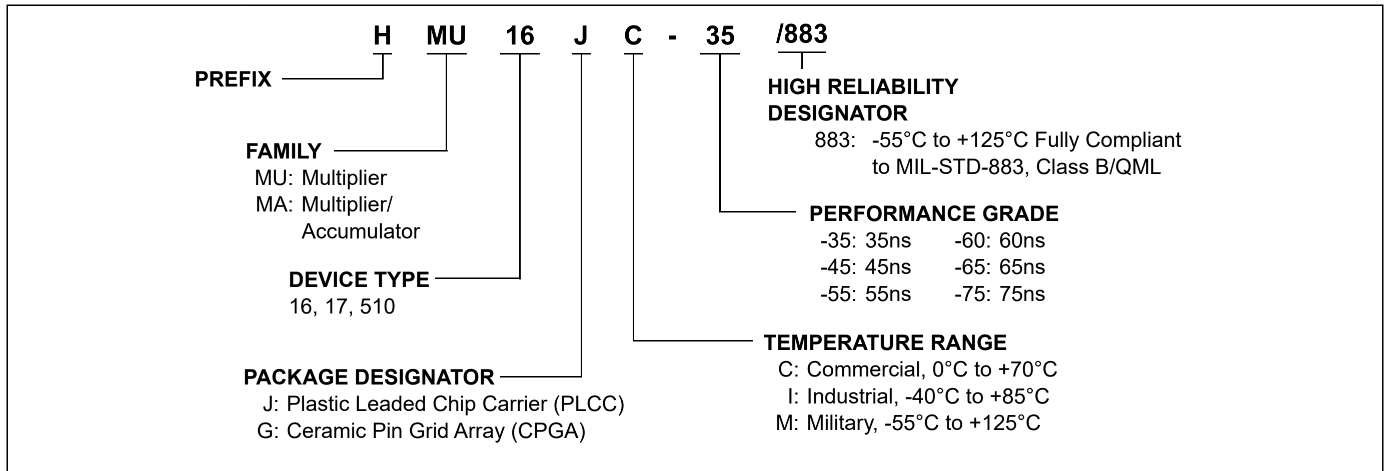
HIP Types



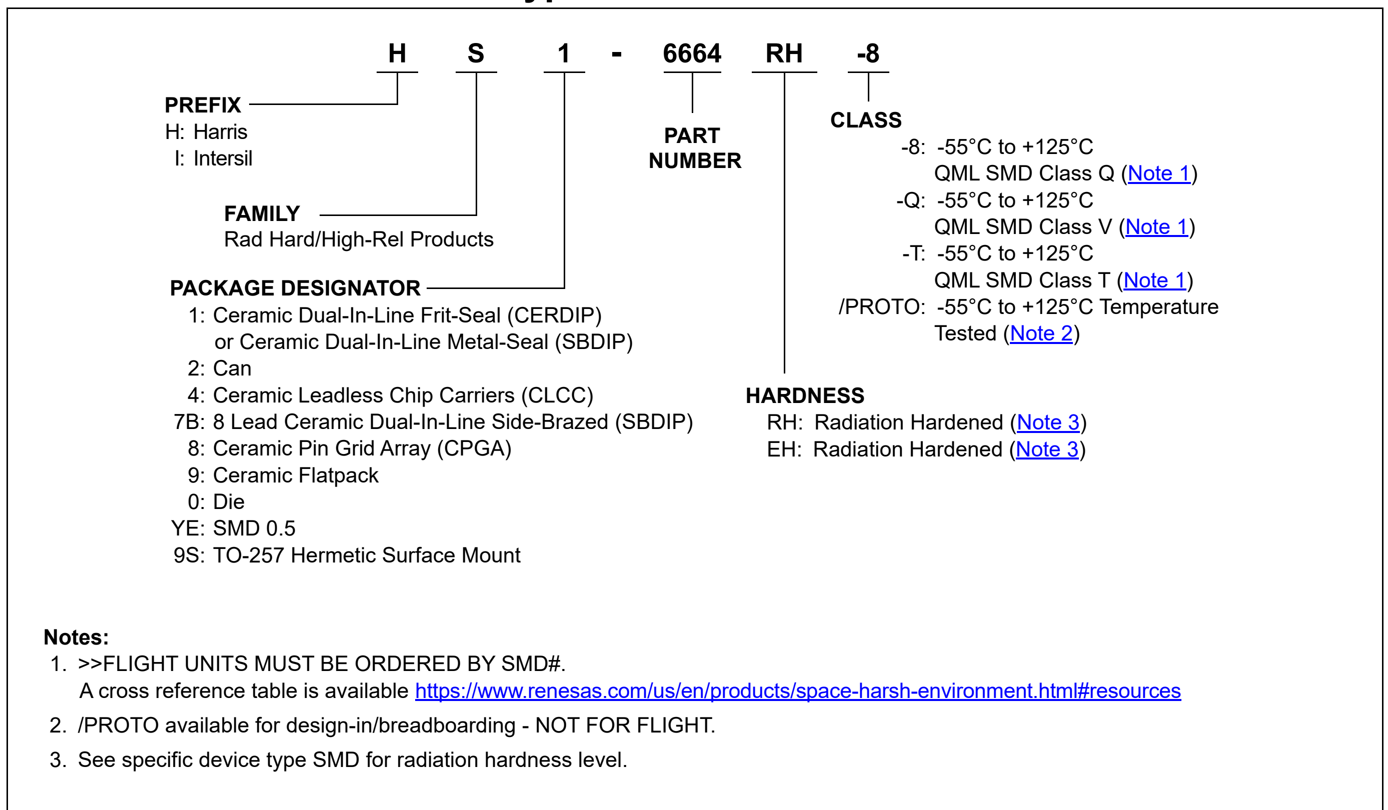
HMP Types



HMU/HMA Types



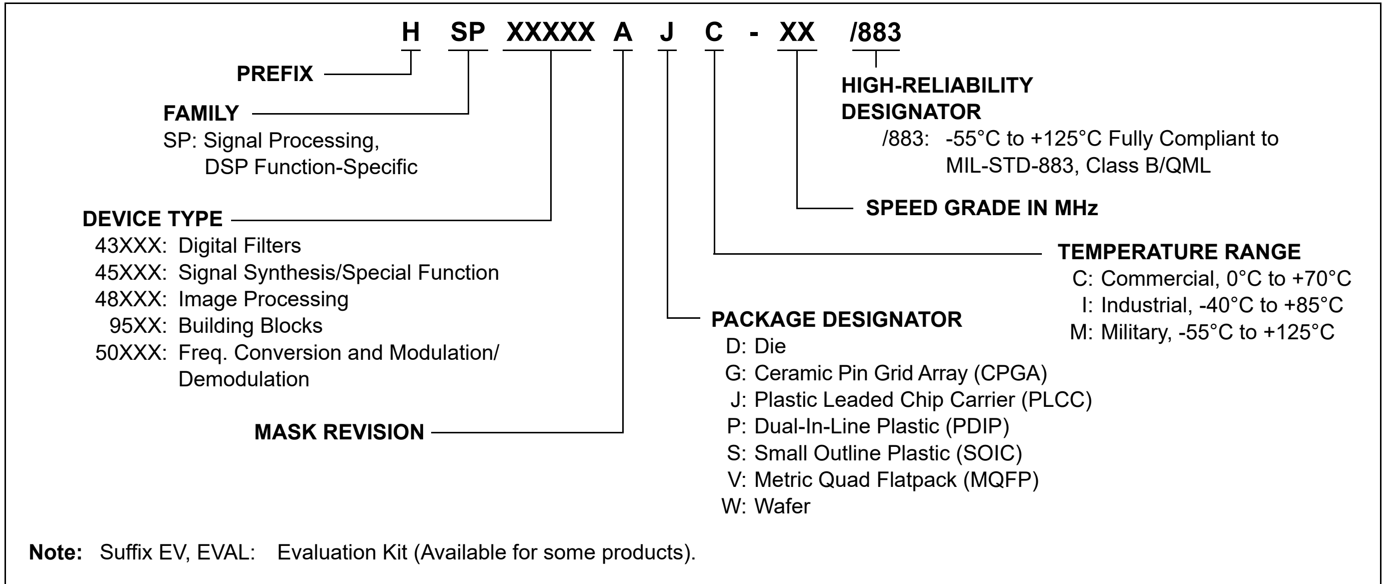
HS/IS Radiation Hardened Types



Notes:

1. >>FLIGHT UNITS MUST BE ORDERED BY SMD#.
   A cross reference table is available https://www.renesas.com/us/en/products/space-harsh-environment.html#resources
2. /PROTO available for design-in/breadboarding - NOT FOR FLIGHT.
3. See specific device type SMD for radiation hardness level.

HSP Types



ICL, ICM Types

ICL 8069D C B A Z T

DEVICE FAMILY
ICL
ICM

PART NUMBER

TEMPERATURE RANGE
C: Commercial, 0°C to +70°C
I: Industrial, -25°C to +85°C or -40°C to +85°C (Specified on Data Sheet)
M: Military, -55°C to +125°C

PACKAGE DESIGNATOR
B: Small Outline Plastic (SOIC)
D: Ceramic Dual-In-Line Metal-Seal (SBDIP)
F: Ceramic Flatpack
H: Small Outline Transistor Plastic (SOT)
J: Ceramic Dual-In-Line Frit-Seal (CERDIP)
M: Metric Plastic Quad Flatpack (MQFP)
P: Plastic Dual-In-Line
S: TO-52 Can
T: Can (TO-99, TO-100)
Z: TO-92 (Plastic)
/W: Wafer
/D: Chip

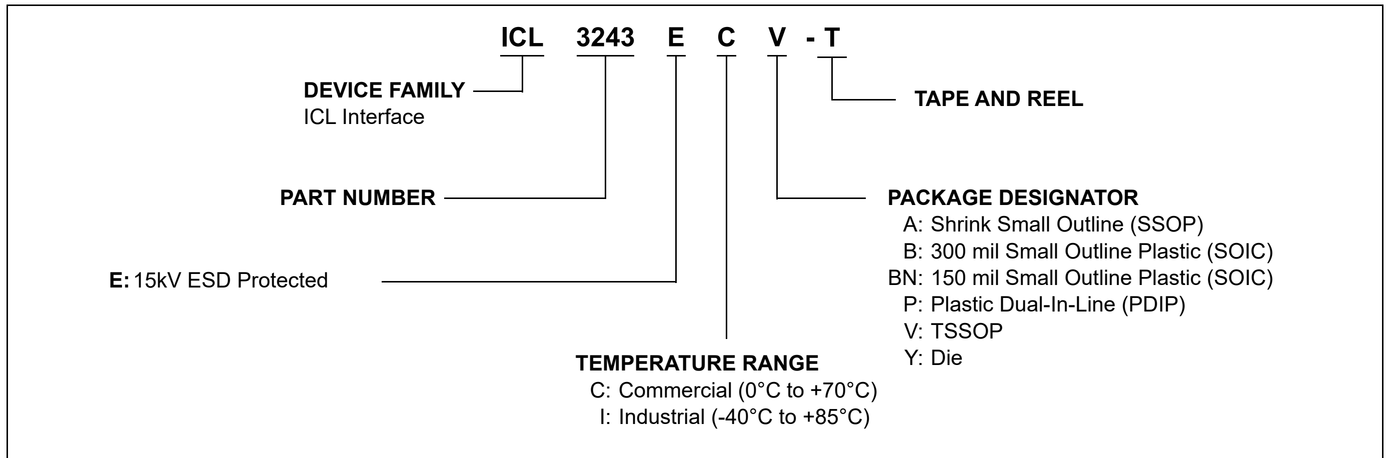
SUFFIX
/883B: Fully Compliant to MIL-STD-883 Class B/QML
T: Tape and Reel

PB-FREE OPTION
Z: Pb-Free Product
ZA: Pb-Free with Anneal

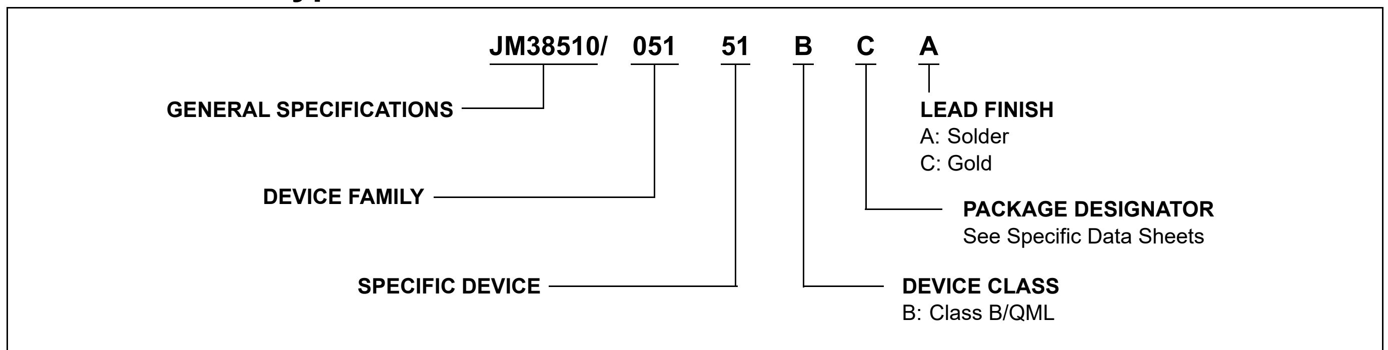
PIN COUNT DESIGNATOR

SUFFIX	PIN COUNT	DIAMETER
A	8	
B	10	
C	12	
D	14	
E	16	
F	22	
G	24	
H	42	
I	28	
J	32	
K	35	
L	40	
N	18	
P	20	
Q	2	
R	3	
V	8	0.200″ Pin Circle, Isolated Case
W	10	0.230″ Pin Circle, Isolated Case
X	10	0.230″ Pin Circle, Case to Pin 5
Y	8	0.200″ Pin Circle, Case to Pin 4
Z	8	0.230″ Pin Circle, Case to Pin 5
44	44	

ICL Types (Interface Circuits)



JM JAN-QML Types



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