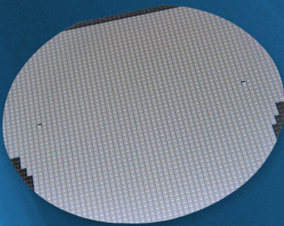
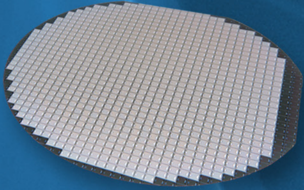
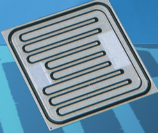


Bare Die Product Guide





Rethink the Possibilities™
Discretes do Matter™

The majority of Central's wafers are produced in TS16949 certified facilities.

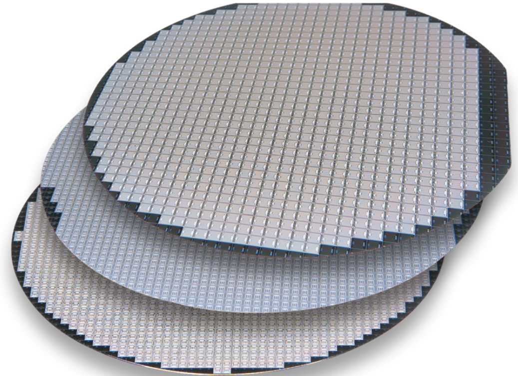
Central Semiconductor Corp.

Standard bare die devices

A Legacy of Innovation

Central Semiconductor Corp. has been in the business of manufacturing discrete semiconductors since 1974.

In 1996, Central entered the hybrid market to fill the void left after the departure of several manufacturers from the bare die market. This guide features Central's standard processes available in bare die. Full wafer or chip tray packing options are available.

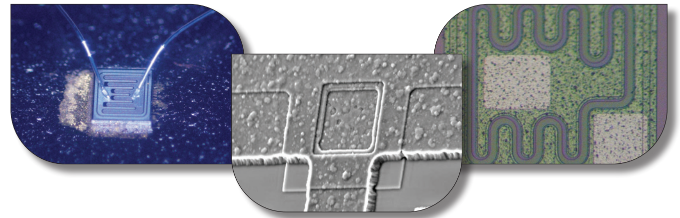


Bare die devices:

- Diodes
- Rectifiers
- Transistors
- TVS Diodes & ESD Protection Diodes
- MOSFETs/JFETs
- Thyristors

Devices available in:

- Fully probed wafers (rejects inked)
- Waffle tray packs (100% accepted die)
- Full wafer sawn on plastic ring (rejects inked)



Processes & facilities

- 100% of die is probed and rejects are inked
- All die are inspected in accordance to MIL-STD-750 Method 2073
- Probing performed in Central's Class 1000 clean room
- Majority of Central's die inventory is held in the U.S. at Hauppauge, NY facility

100% tested and screened in Central's Class 1000 clean room

Custom services & solutions

Your vision is our mission. Central excels at listening to customers' challenges and designing custom solutions that other manufacturers have no interest in pursuing. **Just ask.**

Solutions include the following:

- Electrical parameter screening
- Custom wafer diffusion and metallization
- Standard/customer-specific testing and up-screening

Up-screening capabilities

Central has the capability to perform up-screen testing in-house for high reliability applications.

MIL-PRF 38534
- Class H and K equivalents

MIL-PRF 19500
- Class HC and KC equivalents

Customer-specific up-screening
- Customer SCDs are reviewed and all requirements confirmed

Testing capabilities:

All tests performed to MIL-STD-750 or MIL-STD-883 (bare die) test methods.

Typical bare die up-screening process:

MIL-PRF-38534 Evaluation Elements						
Sub Group	Class		Test	MIL-STD-883		Acceptance Quantity
	K	H		Method	Conditions	
1	X	X	Element electrical			100%
2	X	X	Visual inspection	2010 1/2069 1/2070 1/2072 1/2073		100%
3	X	X	Internal visual	2010 1/2069 1/2070 1/2072 1/2073		10 (0)
4	X		Temperature Cycling	1010	C	2/ 10 (0)
	X		Constant acceleration or mechanical shock	2002 - 2001	B, Y1 direction 3,000 g's, Y1 direction	
	X		Internal electrical			
	X		Burn in	1015	240 hours minimum at +125°C	
	X		Post burn in electrical			
	X		Steady state life	1005		
	X	X	Final electrical			
5	X	X	Wire bond evaluation	2011		10 (0) wires or 20 (1) wires
6	X		SEM	2018 1/2077		See method 2018 of MIL-STD-883 or method 2077 of MIL-STD-750

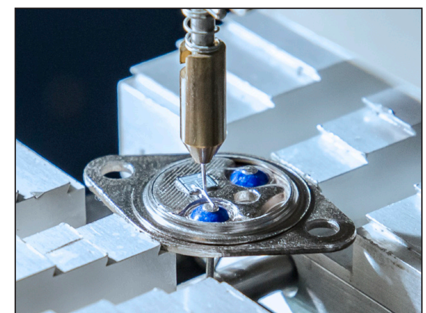
1/ MIL-STD-750 methods.

2/ For Class K sample sizes, see MIL-PRF-38534 Section C.3.3.4.1.

Thermal cycle testing

Temperature cycle chambers

Scanning Electron Micropsy (S.E.M.)


Wire pull testing

Standard part numbering

Standard devices

Die part numbers are derivative of the die process number, principal device part number, and packing method. For further information on die part numbering, visit Central's bare die webpage.

www.centralsemi.com/baredie

Example:
Small Signal NPN high voltage transistor die, 2N3439, in a chip tray (Waffle) Package.

CP310 - 2N3439 - CT

DEVICE TYPE NUMBER
(10 ALPHA/NUMERIC MAX)

CENTRAL PROCESS NUMBER
(5 - 7 ALPHA/NUMERIC)

CPxxx = Transistor
CPZxx = Zener Diode
CPDxx = Diode
CPQxx = TRIAC
CPSxx = SCR

PACKING METHOD

See below for illustrations of each packing method.

CM = Singulated bare die,100% electrically tested, 100% visually inspected, reject die removed, tray (waffle) package

CT = Singulated bare die,100% electrically tested, reject die removed, tray (waffle) package

WN = Wafer form, 100% electrically tested, reject die inked

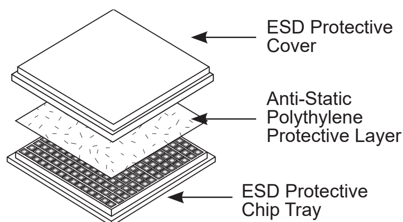
WR = Wafer form,100% electrically tested, sawn and mounted on adhesive membrane and plastic ring, reject die inked

WS* = Wafer form,100% electrically tested, sawn and mounted on adhesive membrane and metal frame, reject die inked

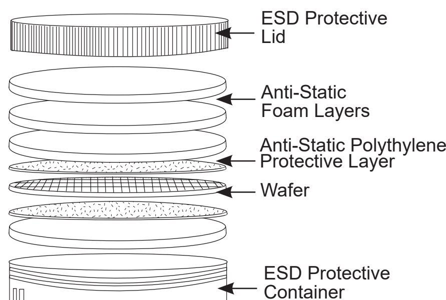
*WS is by special order only. Please contact your local Central sales representative.

Packing methods

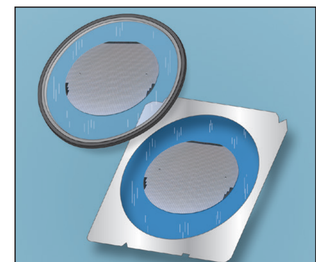
Waffle pack **(CM, CT)**

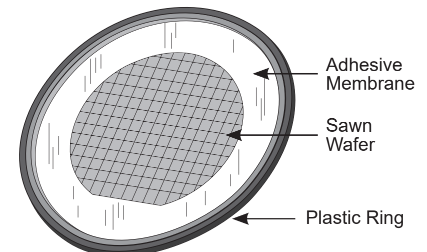


Full unsawn wafers **(WN)**



Sawn wafer on plastic ring **(WR)** or metal frame* **(WS)**





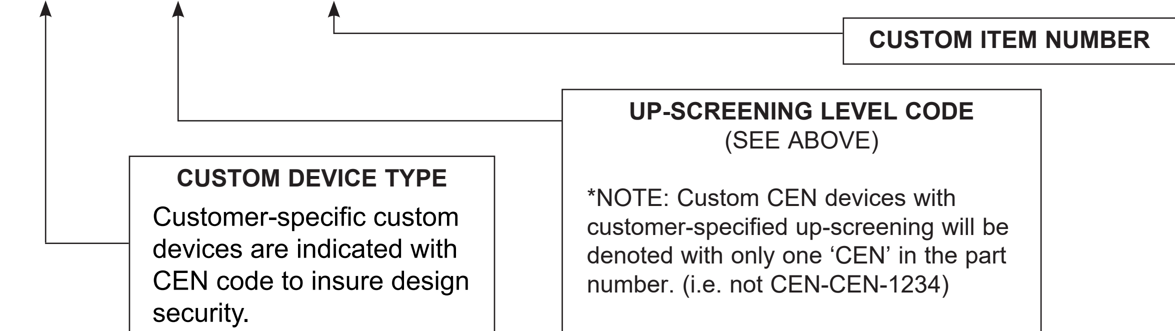
Custom & up-screened part numbering

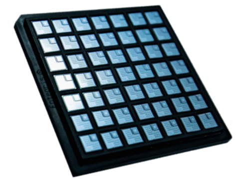
Custom devices

Part numbering for up-screened bare die devices follow the same convention as standard part numbers (see pg. 6), with the addition of one or two character codes to indicate the level of screening.

Example:

Custom device up-screened to MIL-PRF-19500 equivalent or customer defined test specifications.



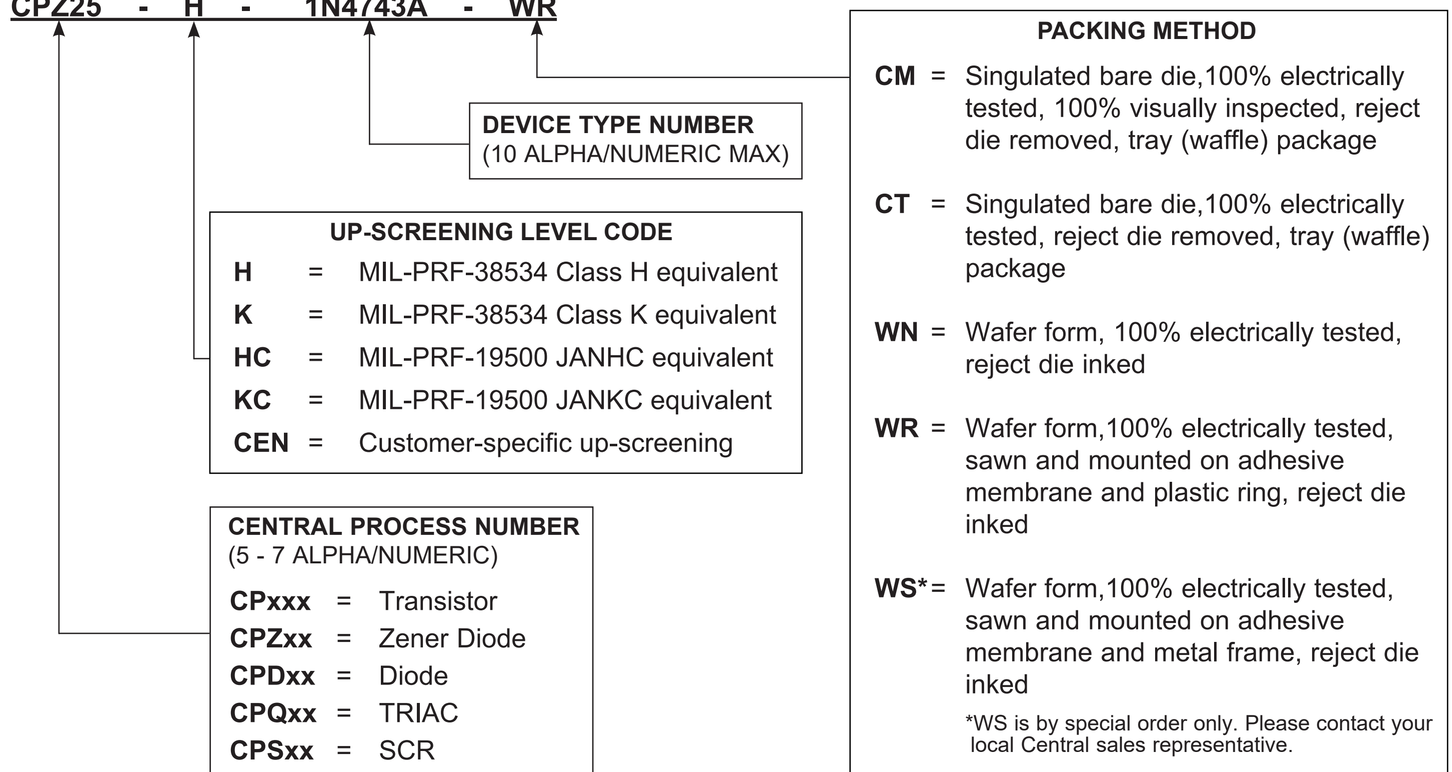


Up-screened devices

Part numbering for up-screened bare die devices follows the same convention as standard part numbers (see pg. 6), with the addition of one or two character codes to indicate the level of screening.

Example:

Zener diode die, up-screened to MIL-PRF-38534 Class H equivalent, 1N4743A, in wafer form on adhesive membrane with plastic ring.



Online product portfolio

Visit Central's intuitive and easy-to-use website search functions to access the complete listing of specifications, datasheets, literature, and sample request links for all devices in the bare die product portfolio.

Product Search Engine

Central's standard product search engine allows users to search directly for specific devices or process types; if a process type is searched, select the suggested principle device. Datasheet, product brief, description, item status, availability, and additional documentation are all available here.

Parameteric Search Tool

Central's parametric search is a real-time database of all bare die products. Simply visit the Central Semi website, select a device type, and check the bare die option for access to all datasheets.

How to request a quote

To request a quote, contact your local Central Sales representative or call 631.435.1110.

Attention to every detail is Central's highest concern. We are committed to exceeding your expectations and earning your business on every requirement.

Questions?

Just Ask

Challenges welcome