

CMPF4391
CMPF4392
CMPF4393

**SURFACE MOUNT SILICON
N-CHANNEL JFETS**



SOT-23 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMPF4391 series devices are silicon N-Channel Field Effect Transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for switching applications.

MARKING CODE:

CMPF4391: 6J
CMPF4392: 6K
CMPF4393: 6G

MAXIMUM RATINGS: ($T_A=25^{\circ}\text{C}$)

Drain-Gate Voltage
Gate-Source Voltage
Drain-Source Voltage
Gate Current
Power Dissipation
Operating and Storage Junction Temperature
Thermal Resistance

SYMBOL

V_{GD} 40
 V_{GS} 40
 V_{DS} 40
 I_G 50
 P_D 350
 T_J, T_{stg} -65 to +150
 Θ_{JA} 357

UNITS

V
V
V
mA
mW
 $^{\circ}\text{C}$
 $^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPF4391		CMPF4392		CMPF4393		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I_{GSS}	$V_{GS}=20\text{V}$	-	0.5	-	0.5	-	0.5	nA
I_{GSS}	$V_{GS}=20\text{V}, T_A=100^{\circ}\text{C}$	-	0.2	-	0.2	-	0.2	μA
I_{DSS}	$V_{DS}=20\text{V}$	50	150	25	75	5.0	30	mA
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=12\text{V}$	-	0.1	-	-	-	-	nA
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=7.0\text{V}$	-	-	-	0.1	-	-	nA
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=5.0\text{V}$	-	-	-	-	-	0.1	nA
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=12\text{V}, T_A=100^{\circ}\text{C}$	-	0.2	-	-	-	-	μA
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=7.0\text{V}, T_A=100^{\circ}\text{C}$	-	-	-	0.2	-	-	μA
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=5.0\text{V}, T_A=100^{\circ}\text{C}$	-	-	-	-	-	0.2	μA
BV_{GSS}	$I_G=1.0\mu\text{A}$	40	-	40	-	40	-	V
$V_{GS(OFF)}$	$V_{DS}=20\text{V}, I_D=1.0\text{nA}$	4.0	10	2.0	5.0	0.5	3.0	V
$V_{GS(f)}$	$I_G=1.0\text{mA}$	-	1.0	-	1.0	-	1.0	V
$V_{DS(ON)}$	$I_D=12\text{mA}$	-	0.4	-	-	-	-	V
$V_{DS(ON)}$	$I_D=6.0\text{mA}$	-	-	-	0.4	-	-	V
$V_{DS(ON)}$	$I_D=3.0\text{mA}$	-	-	-	-	-	0.4	V
$r_{DS(ON)}$	$I_D=1.0\text{mA}, V_{GS}=0$	-	30	-	60	-	100	Ω
$r_{ds(ON)}$	$V_{GS}=0, I_D=0, f=1.0\text{kHz}$	-	30	-	60	-	100	Ω
C_{iss}	$V_{DS}=20\text{V}, V_{GS}=0, f=1.0\text{MHz}$	-	14	-	14	-	14	pF

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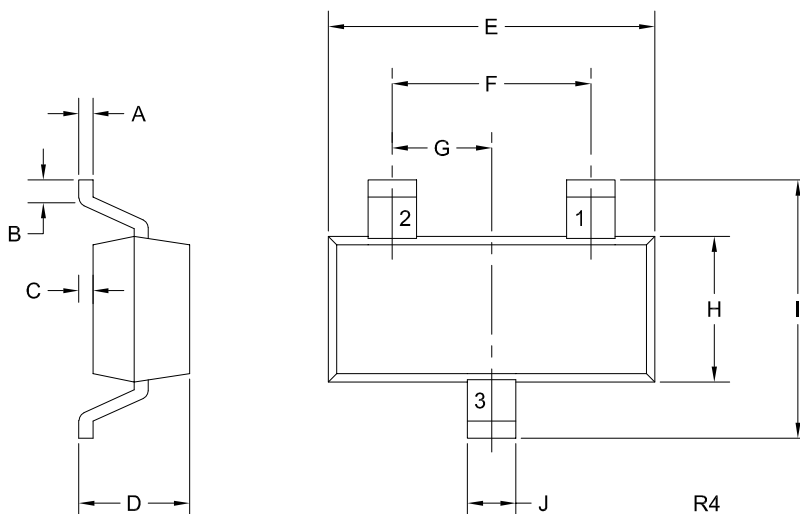
**SURFACE MOUNT SILICON
N-CHANNEL JFETS**



ELECTRICAL CHARACTERISTICS: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMPF4391		CMPF4392		CMPF4393		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
C_{rss}	$V_{GS}=12\text{V}$, $V_{DS}=0$, $f=1.0\text{MHz}$	-	4.0	-	-	-	-	pF
C_{rss}	$V_{GS}=7.0\text{V}$, $V_{DS}=0$, $f=1.0\text{MHz}$	-	-	-	4.0	-	-	pF
C_{rss}	$V_{GS}=5.0\text{V}$, $V_{DS}=0$, $f=1.0\text{MHz}$	-	-	-	-	-	4.0	pF
t_{ON}	$I_{D(ON)}=12\text{mA}$	-	15	-	-	-	-	ns
t_{ON}	$I_{D(ON)}=6.0\text{mA}$	-	-	-	15	-	-	ns
t_{ON}	$I_{D(ON)}=3.0\text{mA}$	-	-	-	-	-	15	ns
t_{OFF}	$V_{GS(OFF)}=12\text{V}$	-	20	-	-	-	-	ns
t_{OFF}	$V_{GS(OFF)}=7.0\text{V}$	-	-	-	35	-	-	ns
t_{OFF}	$V_{GS(OFF)}=5.0\text{V}$	-	-	-	-	-	50	ns

SOT-23 CASE - MECHANICAL OUTLINE



LEAD CODE:

- 1) Drain
- 2) Source
- 3) Gate

MARKING CODES:

**CMPF4391: 6J
CMPF4392: 6K
CMPF4393: 6G**

SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.003	0.007	0.08	0.18
B	0.006	-	0.15	-
C	-	0.005	-	0.13
D	0.035	0.044	0.89	1.12
E	0.110	0.120	2.80	3.05
F	0.075		1.90	
G	0.037		0.95	
H	0.047	0.055	1.19	1.40
I	0.083	0.104	2.10	2.64
J	0.014	0.020	0.35	0.50

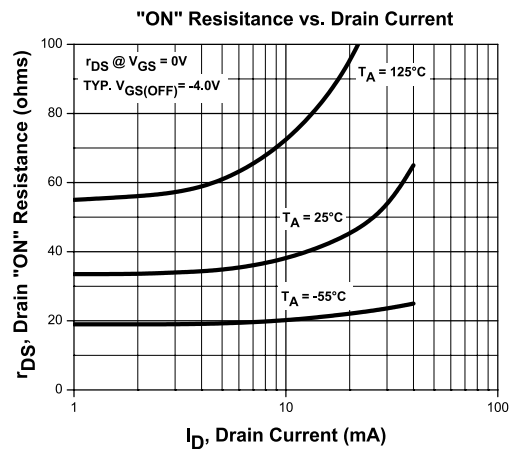
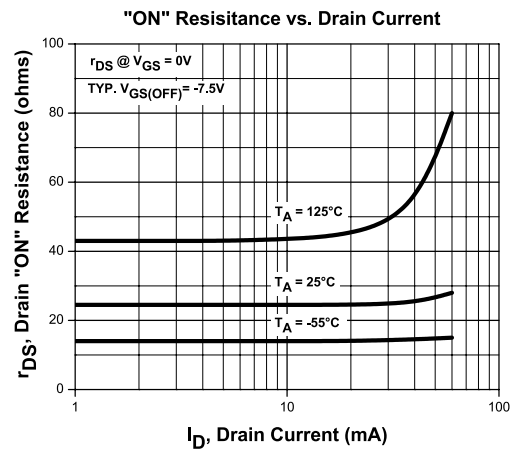
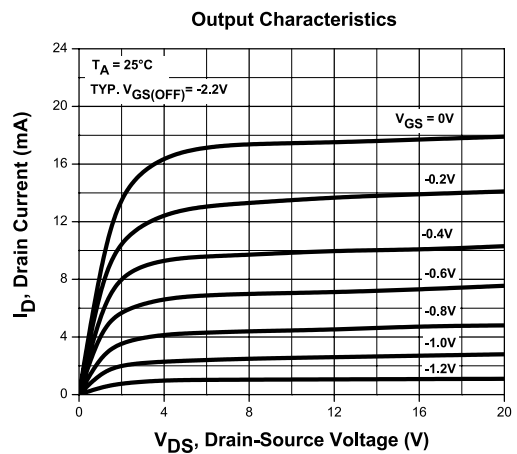
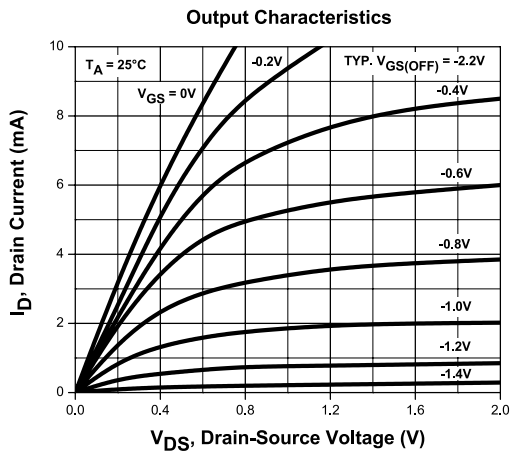
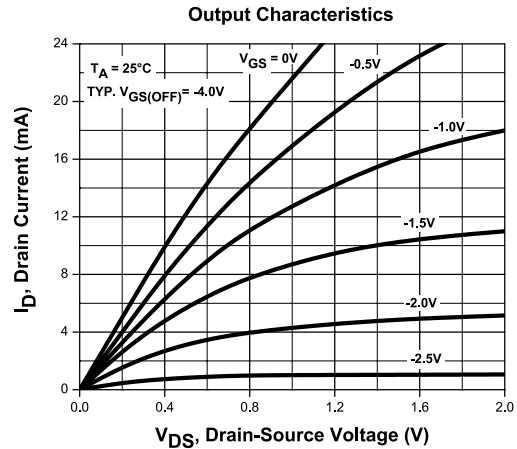
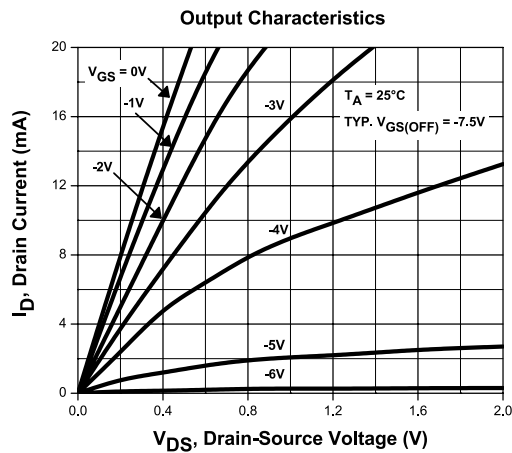
SOT-23 (REV: R4)

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TYPICAL ELECTRICAL CHARACTERISTICS



Note: TYP $V_{GS(OFF)}$ = -7.5V (CMPF4391), -4.0V (CMPF4392), -2.2V (CMPF4393)

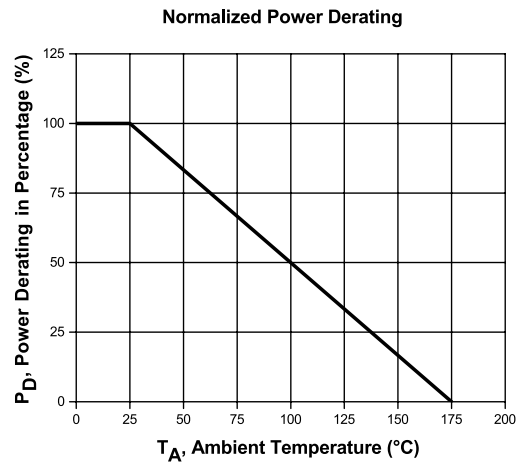
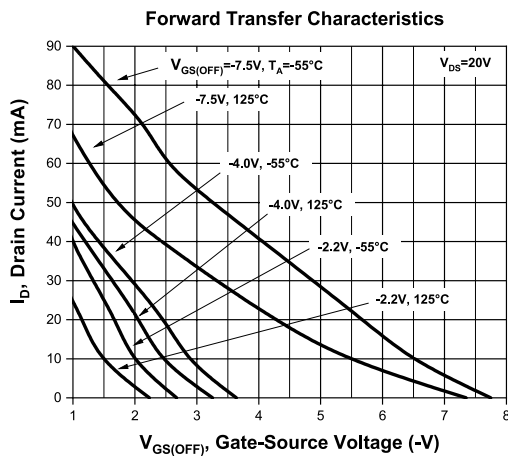
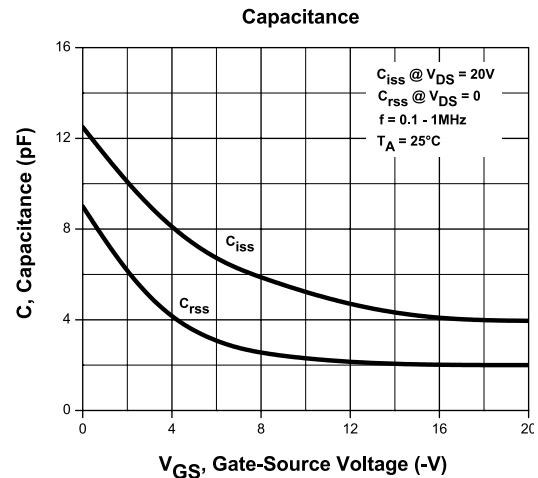
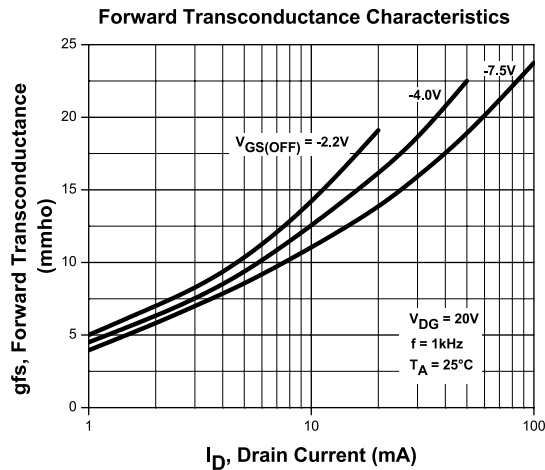
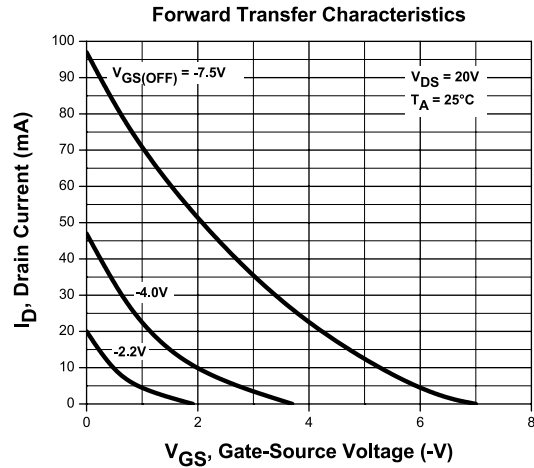
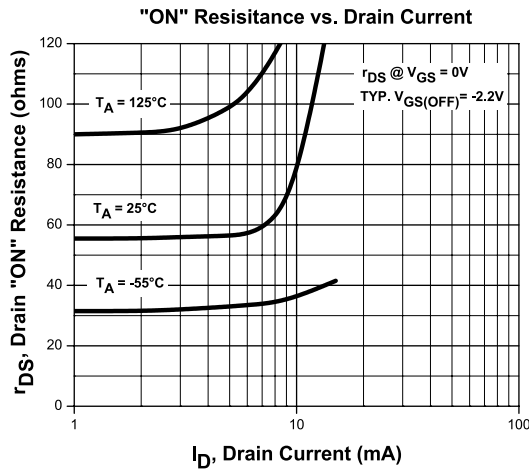
R11 (22-September 2022)

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TYPICAL ELECTRICAL CHARACTERISTICS



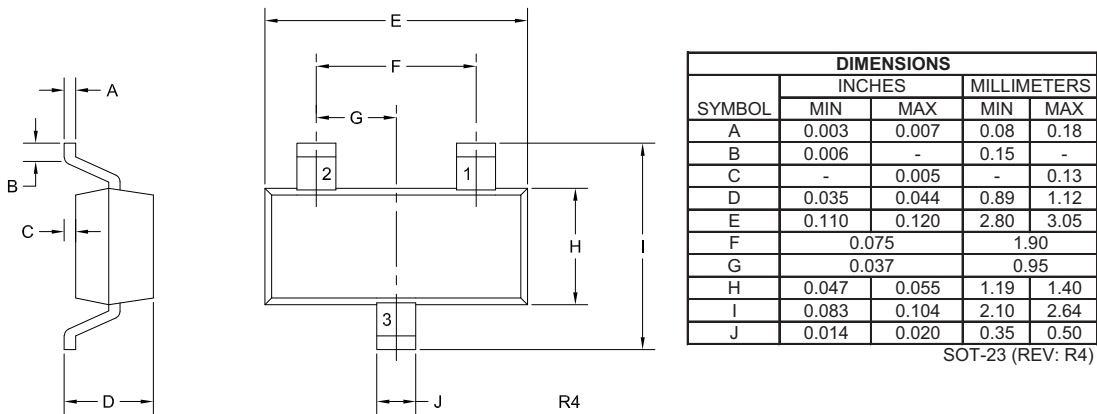
Note: TYP $V_{GS(OFF)} = -7.5\text{V}$ (CMPF4391), -4.0V (CMPF4392), -2.2V (CMPF4393)

R11 (22-September 2022)

Package Details
SOT-23 Case



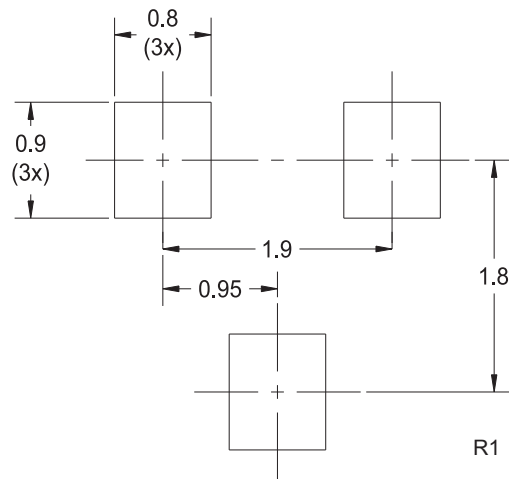
Mechanical Drawing



Lead Code:
Reference individual
device datasheet.

Part Marking: 2-4 Character Alpha/Numeric Code

Mounting Pad Geometry (Dimensions in mm)



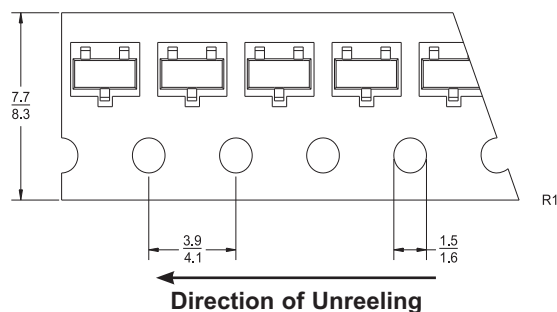
Package Details

SOT-23 Case



Tape Dimensions and Orientation (Dimensions in mm)

Tape Width: 8mm



Devices are taped in accordance with Electronic Industries Association Standard EIA-481-D

Packaging Base

7" Reel = 3,000 pcs.
13" Reel = 10,000 pcs.

Reel Labeling Information

Each reel is labeled with the following information:

Central Part Number, Customer Part Number, Purchase Order Number, Quantity, Lot Number, Date Code, Ship Date and Marking Code.

Reel Packing Information

Reel Size	Reels per Box (Maximum)	Parts per Box (Maximum)	Box Dimensions		Shipping Weight (Max.)	
			INCH	CM	LB	KG
7"	9	27,000	9x9x5	23x23x13	3	2
	18	54,000	9x9x9	23x23x23	6	3
	40	120,000	21x9x9	53x23x23	13	6
	108	324,000	27x9x17	69x23x43	34	16
13"	6	60,000	15x4x15	38x10x38	6	3
	14	140,000	15x15x9	38x38x23	15	7
	26	260,000	15x15x18	38x38x46	28	13

Ordering Information

- For devices taped and reeled on 7" reels, add TR suffix to part number.
- For devices taped and reeled on 13" reels, add TR13 suffix to part number.
- All SMDs are available in small quantities for prototype and manual placement applications.

R4 (27-August 2021)

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Material Composition Specification

SOT-23 Case



Device average mass 8.5 mg
Fluctuation margin +/-10%

Component	Material	Material		Substance	CAS No.	Substance		
		(%wt)	(mg)			(%wt)	(mg)	(ppm)
active device	doped Si	2.71%	0.23	Si	7440-21-3	2.71%	0.23	27,059
bond wire	gold or copper	0.25%	0.021	Au	7440-57-5	0.25%	0.021	2,471
				Cu	7440-50-8			
leadframe	alloy 42	25.4%	2.159	Fe	7439-89-6	14.99%	1.274	149,882
				Ni	7440-02-0	10.41%	0.885	104,118
leadframe plating	silver	0.71%	0.06	Ag	7440-22-4	0.71%	0.06	7,059
encapsulation*	EMC	68.94%	5.86	silica	7631-86-9	46.87%	3.984	468,706
				epoxy resin	29690-82-2	13.79%	1.172	137,882
				phenol resin	9003-35-4	6.89%	0.586	68,941
				Sb ₂ O ₃	1309-64-4	0.69%	0.059	6,941
				Br	7726-95-6	0.69%	0.059	6,941
	EMC GREEN	68.94%	5.86	silica (fused)	60676-86-0	53.08%	4.512	530,824
				epoxy resin	29690-82-2	6.89%	0.586	68,941
				phenol resin	9003-35-4	6.68%	0.568	66,824
				carbon black	1333-86-4	0.21%	0.018	2,118
				metal hydroxide	1309-42-8	2.07%	0.176	20,706
plating**	tin/lead process	2.0%	0.17	Sn	7440-31-5	1.59%	0.135	15,882
				Pb	7439-92-1	0.41%	0.035	4,118
	matte tin	2.0%	0.17	Sn	7440-31-5	2.0%	0.17	20,000

*EMC GREEN molding compound is Halogen-Free.

**For Lead Free plating, add suffix "PB FREE" to part number.

For Tin/Lead plating, add suffix "TIN/LEAD" to part number.

No suffix designation allows for the supply of either lead-free or tin/lead plated product depending on availability.

Disclaimer

The information provided in this Material Composition data sheet is, to the best of our knowledge, correct. However, there is no guarantee to completeness or accuracy, as some information is derived from data sources outside the company.

R11 (16-July 2018)

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OUTSTANDING SUPPORT AND SUPERIOR SERVICES



PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2nd day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

CONTACT US

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