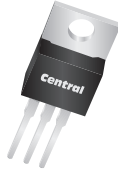


CS220-12B  
CS220-12D  
CS220-12M  
CS220-12N  
CS220-12P

**SILICON CONTROLLED RECTIFIERS**  
**12 AMP, 200 THRU 1000 VOLT**



**TO-220 CASE**



[www.centralemi.com](http://www.centralemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CS220-12B series types are epoxy molded SCRs designed for sensing circuit and control system applications.

**MARKING: FULL PART NUMBER**

**MAXIMUM RATINGS:** ( $T_C=25^{\circ}\text{C}$  unless otherwise noted)

		CS220					
	SYMBOL	-12B	-12D	-12M	-12N	-12P	UNITS
Peak Repetitive Off-State Voltage	$V_{\text{DRM}}, V_{\text{RRM}}$	200	400	600	800	1000	V
RMS On-State Current ( $T_C=90^{\circ}\text{C}$ )	$I_{\text{T(RMS)}}$			12			A
Peak One Cycle Surge Current, $t=10\text{ms}$	$I_{\text{TSM}}$			80			A
$I^2t$ Value for Fusing, $t=10\text{ms}$	$I^2t$			32			$\text{A}^2\text{s}$
Peak Gate Power Dissipation, $t_p=10\mu\text{s}$	$P_{\text{GM}}$			40			W
Average Gate Power Dissipation	$P_{\text{G(AV)}}$			1.0			W
Peak Forward Gate Current, $t_p=10\mu\text{s}$	$I_{\text{FGM}}$			4.0			A
Peak Forward Gate Voltage, $t_p=10\mu\text{s}$	$V_{\text{FGM}}$			16			V
Peak Reverse Gate Voltage, $t_p=10\mu\text{s}$	$V_{\text{RGM}}$			5.0			V
Critical Rate of Rise of On-State Current	$di/dt$			100			$\text{A}/\mu\text{s}$
Operating Junction Temperature	$T_{\text{J}}$			-40 to +125			$^{\circ}\text{C}$
Storage Temperature	$T_{\text{stg}}$			-40 to +150			$^{\circ}\text{C}$
Thermal Resistance	$\Theta_{\text{JA}}$			60			$^{\circ}\text{C}/\text{W}$
Thermal Resistance	$\Theta_{\text{JC}}$			2.5			$^{\circ}\text{C}/\text{W}$

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

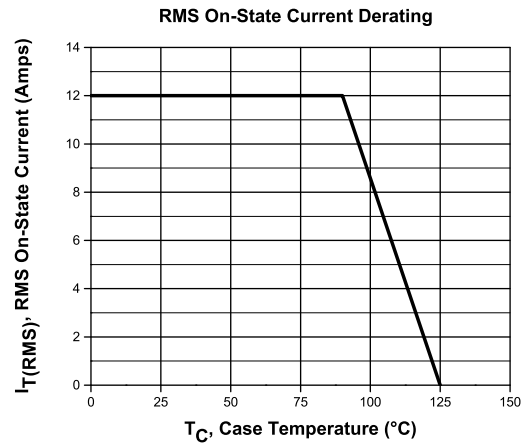
SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_{\text{DRM}}, I_{\text{RRM}}$	Rated $V_{\text{DRM}}, V_{\text{RRM}}$			10	$\mu\text{A}$
$I_{\text{DRM}}, I_{\text{RRM}}$	Rated $V_{\text{DRM}}, V_{\text{RRM}}, T_C=125^{\circ}\text{C}$			3.0	$\text{mA}$
$I_{\text{GT}}$	$V_{\text{D}}=12\text{V}, R_{\text{L}}=10\Omega$		3.5	15	$\text{mA}$
$I_{\text{H}}$	$I_{\text{T}}=100\text{mA}$		8.7	20	$\text{mA}$
$V_{\text{GT}}$	$V_{\text{D}}=12\text{V}, R_{\text{L}}=10\Omega$		0.64	1.5	V
$V_{\text{TM}}$	$I_{\text{TM}}=24\text{A}, t_p=380\mu\text{s}$		1.21	1.6	V
$dv/dt$	$V_{\text{D}}=2/3\text{Rated } V_{\text{DRM}}, T_C=125^{\circ}\text{C}$	200			$\text{V}/\mu\text{s}$

CS220-12B  
CS220-12D  
CS220-12M  
CS220-12N  
CS220-12P

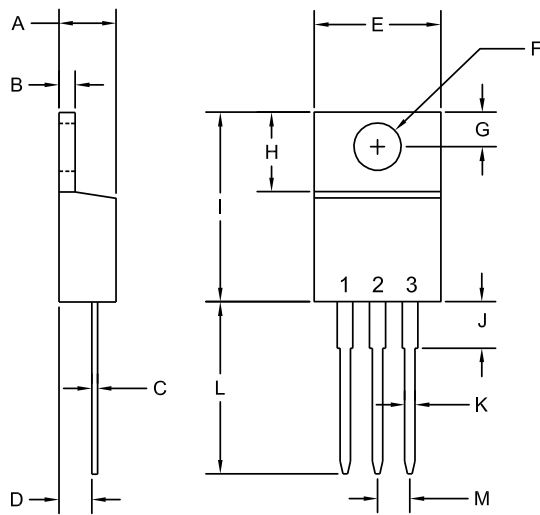
SILICON CONTROLLED RECTIFIERS  
12 AMP, 200 THRU 1000 VOLT



## TYPICAL ELECTRICAL CHARACTERISTICS



## TO-220 CASE - MECHANICAL OUTLINE



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.170	0.190	4.31	4.82
B	0.045	0.055	1.15	1.39
C	0.013	0.026	0.33	0.65
D	0.083	0.107	2.10	2.72
E	0.394	0.417	10.01	10.60
F (DIA)	0.140	0.157	3.55	4.00
G	0.100	0.118	2.54	3.00
H	0.230	0.270	5.85	6.85
I	0.560	0.625	14.23	15.87
J	-	0.250	-	6.35
K	0.025	0.038	0.64	0.96
L	0.500	0.579	12.70	14.70
M	0.090	0.110	2.29	2.79

TO-220 (REV: R2)

### LEAD CODE:

- 1) Cathode
- 2) Anode
- 3) Gate

Tab is common to pin 2

### MARKING: FULL PART NUMBER

R6 (5-September 2014)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### 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

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### DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2<sup>nd</sup> 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

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### CONTACT US

#### Corporate Headquarters & Customer Support Team

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[www.centalsemi.com](http://www.centalsemi.com)

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**Worldwide Distributors:**  
[www.centalsemi.com/wwdistributors](http://www.centalsemi.com/wwdistributors)

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For the latest version of Central Semiconductor's **LIMITATIONS AND DAMAGES DISCLAIMER**, which is part of Central's Standard Terms and Conditions of sale, visit: [www.centalsemi.com/terms](http://www.centalsemi.com/terms)

Summary: The CS220 series of Silicon Controlled Rectifiers in the TO-220 case is discontinued and now classified as End of Life (EOL).

Although Central Semiconductor Corp. makes every effort to continue to produce devices that have been proclaimed EOL (End of Life) by various manufacturers, it is an accepted industry practice to discontinue certain devices when customer demand falls below a minimum level of sustainability. Accordingly, the following product(s) have been transitioned to End of Life status as part of Central's Product Management Process. Any replacement product will be noted below. The effective date for placing the last purchase order will be six(6) months from the date of this notice and twelve(12) months from the notice date for final shipments; this may be extended if inventory is available.

<b>Central Part Number</b>	<b>Replacement</b>
CS220-10B	N/A
CS220-10D	N/A
CS220-10M	N/A
CS220-10N	N/A
CS220-12B	N/A
CS220-12D	N/A
CS220-12M	N/A
CS220-12N	N/A
CS220-12P	N/A
CS220-16B	N/A
CS220-16D	N/A
CS220-16M	N/A
CS220-16N	N/A
CS220-16P	N/A
CS220-25B	N/A
CS220-25D	N/A
CS220-25M	N/A
CS220-25N	N/A
CS220-25P	N/A
CS220-25PB	N/A
CS220-35M	N/A
CS220-35N	N/A
CS220-8B	N/A
CS220-8D	N/A
CS220-8F	N/A
CS220-8M	N/A
CS220-8N	N/A

Central would be happy to assist you by providing additional information or technical data to help locate an alternate source if we have no replacement available. Please email your requests to [engineering@centrasemi.com](mailto:engineering@centrasemi.com).