

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

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

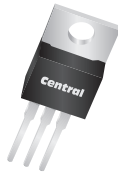


www.centrasemi.com

**DESCRIPTION:**

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

**MARKING: FULL PART NUMBER**



TO-220 CASE

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

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

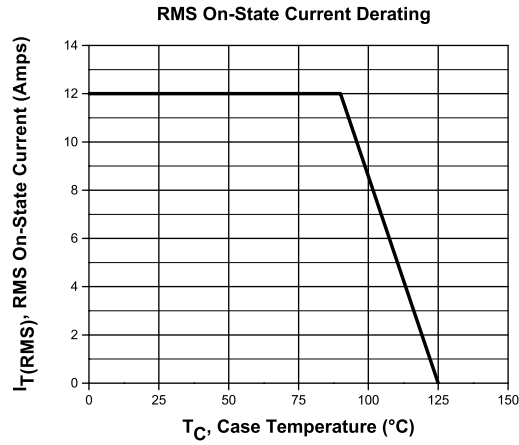
**ELECTRICAL CHARACTERISTICS:** ( $T_C=25^\circ\text{C}$  unless otherwise noted)

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

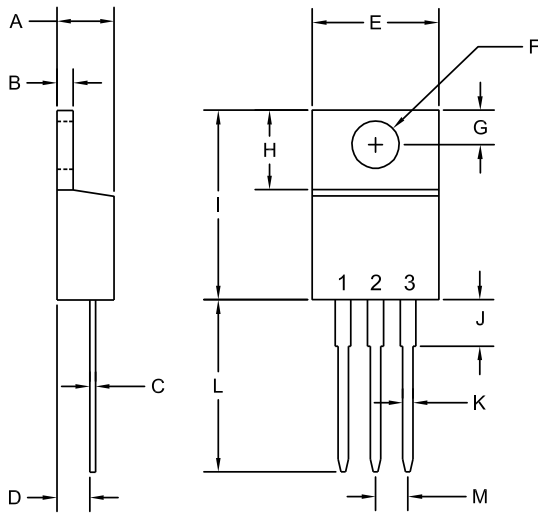
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**TYPICAL ELECTRICAL CHARACTERISTICS**



**TO-220 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	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)