

CQ220-12B  
 CQ220-12D  
 CQ220-12M  
 CQ220-12N

12 AMP TRIAC  
 200 THRU 800 VOLTS



TO-220 CASE

# Central<sup>TM</sup>

Semiconductor Corp.

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CQ220-12B series type is an Epoxy Molded Silicon Triac designed for full wave AC control applications featuring gate triggering in all four (4) quadrants.

**MARKING CODE: FULL PART NUMBER**

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

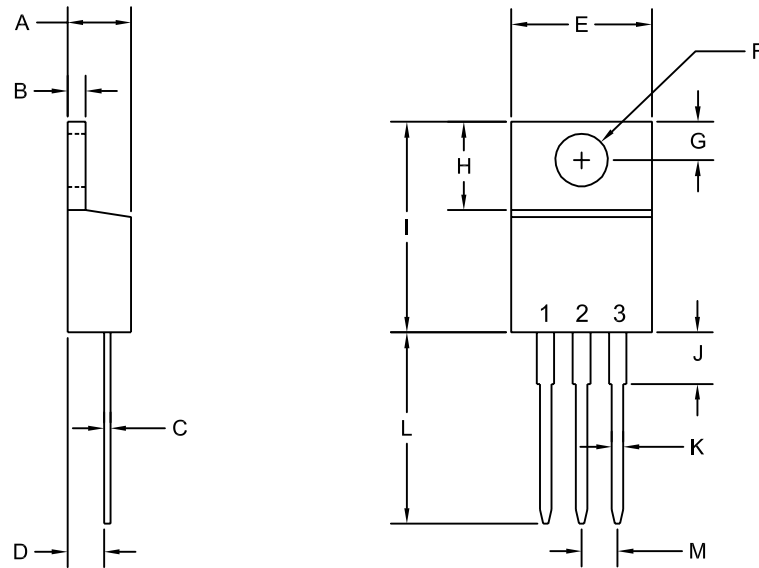
	SYMBOL	CQ220 -12B	CQ220 -12D	CQ220 -12M	CQ220 -12N	UNITS
Peak Repetitive Off-State Voltage	$V_{DRM}$	200	400	600	800	V
RMS On-State Current ( $T_C=90^\circ\text{C}$ )	$I_T(\text{RMS})$			12		A
Peak One Cycle Surge ( $t=8.3\text{ms}$ )	$I_{TSM}$			80		A
$I^2t$ Value for Fusing ( $t=8.3\text{ms}$ )	$I^2t$			27		$\text{A}^2\text{s}$
Peak Gate Power ( $t_p=10\mu\text{s}$ )	$P_{GM}$			40		W
Average Gate Power Dissipation	$P_G (AV)$			1.0		W
Peak Gate Current ( $t_p=10\mu\text{s}$ )	$I_{GM}$			4.0		A
Peak Gate Voltage ( $t_p=10\mu\text{s}$ )	$V_{GM}$			16		V
Critical Rate of Rise of On-State Current						
Repetitive ( $f=60\text{Hz}$ )	$di/dt$			10		$\text{A}/\mu\text{s}$
Storage Temperature	$T_{stg}$		-40 to +150			$^\circ\text{C}$
Junction Temperature	$T_J$		-40 to +125			$^\circ\text{C}$
Thermal Resistance	$\theta_{JA}$			60		$^\circ\text{C}/\text{W}$
Thermal Resistance	$\theta_{JC}$			2.7		$^\circ\text{C}/\text{W}$

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_{DRM}$	Rated $V_{DRM}$			10	$\mu\text{A}$
$I_{DRM}$	Rated $V_{DRM}$ , $T_C=125^\circ\text{C}$			500	$\mu\text{A}$
$I_{GT}$	$V_D=12\text{V}$ , $R_L=10\Omega$ , QUAD I, II, III		9.9	20	mA
$I_{GT}$	$V_D=12\text{V}$ , $R_L=10\Omega$ , QUAD IV		24.3	50	mA
$I_H$	$I_T=100\text{mA}$		14.1	25	mA
$V_{GT}$	$V_D=12\text{V}$ , $R_L=10\Omega$ , QUAD I, II, III		1.10	1.50	V
$V_{GT}$	$V_D=12\text{V}$ , $R_L=10\Omega$ , QUAD IV		2.10	2.50	V
$V_{TM}$	$I_{TM}=17\text{A}$ , $t_p=380\mu\text{s}$		1.33	1.50	V
$dv/dt$	$V_D=2/3 V_{DRM}$ , $R_{GK}=\infty$ , $T_C=125^\circ\text{C}$	10			$\text{V}/\mu\text{s}$

R2 (24-September 2004)

**TO-220 CASE - MECHANICAL OUTLINE**



R2

**LEAD CODE:**

- 1) MT1
- 2) MT2
- 3) GATE

NOTE: TAB IS COMMON  
TO PIN 2 (MT2)

**MARKING CODE:**

**FULL PART NUMBER**

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)