



**Applications**

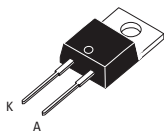
- Input Rectification
- Low Frequency Freewheel
- Battery Isolation

- > Suitable for General Purpose Applications
- > Isolated and Non-Isolated Tab
- >  $V_R/V_{RRM}$  400, 600, 800, 1000V

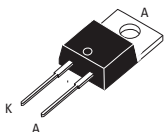
# CRNA/CRNB20

20Amp - 400/600/800/1000V - **RECTIFIER**

2 Pin Package (Standard)

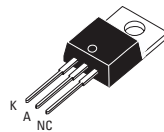


TO-220AB Isolated (CRNA20)

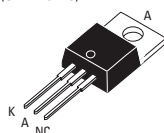


TO-220AB Non-Isolated (CRNB20)

3 Pin Package (Suffix L3)



TO-220AB Isolated (CRNA20...L3)



TO-220AB Non-Isolated (CRNB20...L3)



**Absolute Maximum Ratings**

	CONDITIONS	SYMBOL	RATING
RMS On-State Current (full sine wave)	$T_c = 95^\circ\text{C}$ $T_c = 80^\circ\text{C}$ TO-220AB TO-220AB Iso	$I_{F(RMS)}$	20A
Average On-State Current	$T_c = 95^\circ\text{C}$ $T_c = 80^\circ\text{C}$ TO-220AB TO-220AB Iso	$I_{F(AV)}$	12.7A
Non Repetitive Surge Peak On-State Current (Full Cycle, $T_j$ Initial = $25^\circ\text{C}$ )	F = 50 Hz F = 60 Hz	$I_{FSM}$	255A 300A
$I^2t$ Value for fusing	$t_p = 10$ ms	$I^2t$	374A <sup>2</sup> s
Storage Temperature Range		$T_{stg}$	-40 to +150°C
Operating Junction Temperature Range		$T_j$	-40 to +125°C
Isolation Voltage (CRNA Series only)		$V_{ISO}$	2500 $V_{RMS}$

**Electrical Characteristics**

$V_{FM}$ @ 20A	$T_j = 25^\circ\text{C}$	1.1V
$I_{RM}$ @ $V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$	0.1mA
$I_{RM}$ @ $V_R = V_{RRM}$	$T_j = 125^\circ\text{C}$	1.0mA

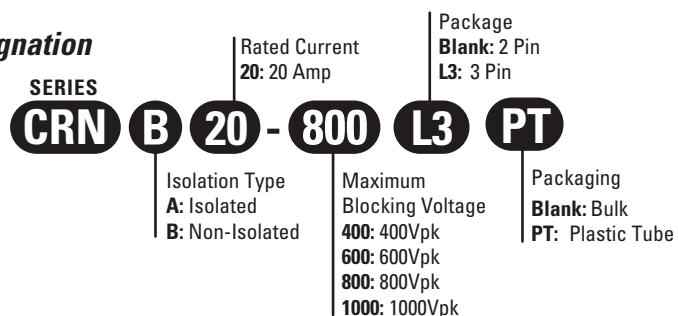
**Thermal Resistances**

	PACKAGE	SYMBOL	RATING
Junction to Case (AC)	TO-220AB	$R_{th(j-c)}$	1.8°C/W
Junction to Case (AC)	TO-220AB Isolated	$R_{th(j-c)}$	2.7°C/W
Junction to Ambient	TO-220AB	$R_{th(j-a)}$	60°C/W
Junction to Ambient	TO-220AB Isolated	$R_{th(j-a)}$	60°C/W

**GENERAL NOTES**

1. All parameters at 25 degrees C unless otherwise specified.

**Part Number Designation**





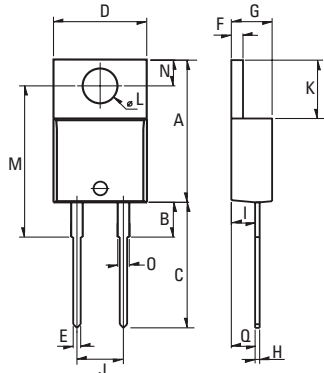
# C3 Semiconductor, LLC

## Dimensions 2 Pin Package

# CRNA/CRNB20

20Amp - 400/600/800/1000V - RECTIFIER

## Characteristics



Weight: 2.3g (0.08 oz)

REF.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.24		15.75	0.6		0.62
B		3.23			0.127	
C	12.78		13.79	0.503		0.543
D	9.96		10.36	0.392		0.408
E	0.69		0.94	0.027		0.037
F	1.22		1.32	0.048		0.052
G	4.62		4.83	0.182		0.19
H	0.46		0.61	0.018		0.024
I	2.49		2.84	0.098		0.112
J	2.39		2.69	0.094		0.106
K	6.48		6.88	0.255		0.271
L	3.78		3.89	0.149		0.153
M	15.49	16	16.51	0.61	0.63	0.65
N	2.59		2.9	0.102		0.114
O	0.99		1.55	0.039		0.061
Q		2.67			0.105	

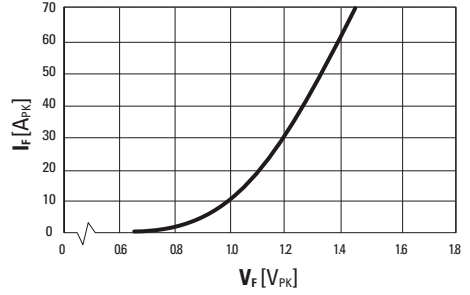


Fig. 1: On-state current versus on-state voltage (instantaneous values)

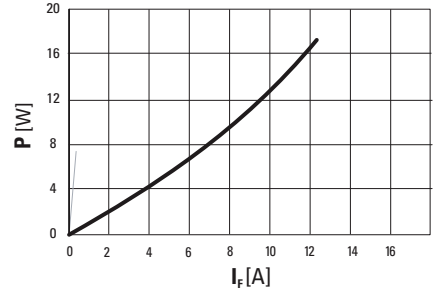
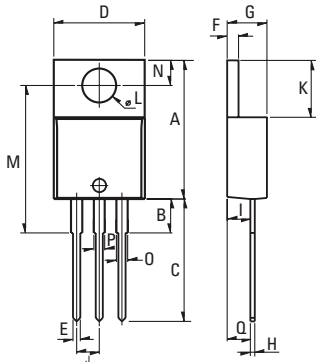


Fig. 3: Power dissipation versus average on-state current

## Dimensions 3 Pin Package



Weight: 2.3g (0.08 oz)

REF.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.24		15.75	0.6		0.62
B		3.23			0.127	
C	12.78		13.79	0.503		0.543
D	9.96		10.36	0.392		0.408
E	0.69		0.94	0.027		0.037
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N	2.59		2.9	0.102		0.114
O	0.99		1.55	0.039		0.061
P	0.99		1.55	0.039		0.061
Q		2.67			0.105	

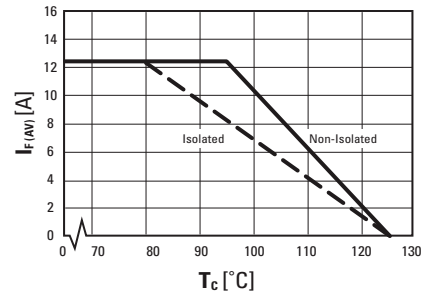


Fig. 2: Average on-state current versus case temperature

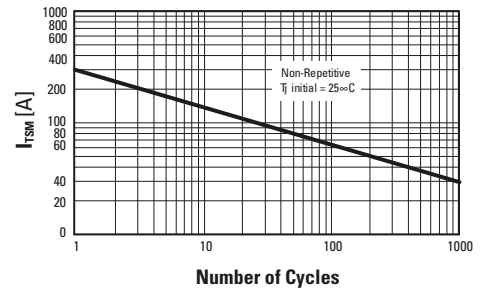


Fig. 4: Non-repetitive surge peak on-state current versus number of cycles.

ISO9001 Certified

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## Approvals

UL Recognized Component - E72445  
(For CRNA series)

For recommended applications and more information contact:

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