

# DIGITRON SEMICONDUCTORS

## BRX44–BRX49

## SILICON CONTROLLED RECTIFIERS

Available Non-RoHS (standard) or RoHS compliant (add PBF suffix).

Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.

### MAXIMUM RATINGS

Characteristics	Symbol	Value	Units
<b>Peak repetitive forward and reverse blocking voltage<sup>(1)</sup></b> ( $T_J = 25$ to $125^\circ\text{C}$ , $R_{GK} = 1000\Omega$ )	$V_{DRM}, V_{RRM}$	30 60 100 200 400	Volts
BRX44			
BRX45			
BRX46			
BRX47			
BRX49			
<b>Forward current RMS (all conduction angles)</b>	$I_{T(RMS)}$	0.8	Amps
<b>Peak forward surge current</b> ( $T_A = 25^\circ\text{C}$ , $1/2$ cycle, sine wave, 60Hz)	$I_{TSM}$	8	Amps
<b>Circuit fusing considerations</b> ( $T_A = 25^\circ\text{C}$ , $t = 8.3\text{ms}$ )	$I^2t$	0.15	$\text{A}^2\text{s}$
<b>Forward peak gate power (<math>T_A = 25^\circ\text{C}</math>)</b>	$P_{GM}$	0.1	Watt
<b>Forward peak gate current (<math>T_A = 25^\circ\text{C}</math>)</b> (300 $\mu\text{s}$ , 120 PPS)	$I_{GM}$	1	Amps
<b>Peak reverse gate voltage</b>	$V_{GRM}$	5	Volts
<b>Operating junction temperature range @ rated <math>V_{RRM}</math> and <math>V_{DRM}</math></b>	$T_J$	-40 to +125	$^\circ\text{C}$
<b>Storage temperature range</b>	$T_{stg}$	-40 to +150	$^\circ\text{C}$
<b>Lead solder temperature (&lt;1.5mm from case, 10 sec. max.)</b>		+230	$^\circ\text{C}$
<b>Thermal Resistance, junction to case</b>	$R_{\theta JC}$	75	$^\circ\text{C}/\text{W}$
<b>Thermal Resistance, junction to ambient</b>	$R_{\theta JA}$	200	$^\circ\text{C}/\text{W}$

Note 1:  $V_{DRM}$  and  $V_{RRM}$  for all types can be applied on a continuous basis. Ratings apply for zero or negative gate voltage; however, positive gate voltage shall not be applied concurrent with negative potential on the anode. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded.

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ , $R_{GK} = 1000\Omega$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Units
<b>Peak forward blocking current</b> ( $V_D = \text{rated } V_{DRM} @ T_C = 125^\circ\text{C}$ )	$I_{DRM}$	-	100	$\mu\text{A}$
<b>Peak reverse blocking current</b> ( $V_R = \text{rated } V_{RRM} @ T_C = 125^\circ\text{C}$ )	$I_{RRM}$	-	100	$\mu\text{A}$
<b>Forward "on" voltage<sup>(2)</sup></b> ( $I_{TM} = 1\text{A peak } @ T_A = 25^\circ\text{C}$ )	$V_{TM}$	-	1.7	Volts
<b>Gate trigger current (continuous dc)<sup>(3)</sup></b> (Anode voltage = 7V, $R_L = 100\Omega$ , $T_C = 25^\circ\text{C}$ )	$I_{GT}$	-	200	$\mu\text{A}$
<b>Gate trigger voltage (continuous dc)</b> (Anode voltage = 7V, $R_L = 100\Omega$ ) (Anode voltage = rated $V_{DRM}$ , $R_L = 100\Omega$ ) $T_C = 25^\circ\text{C}$ $T_C = -40^\circ\text{C}$ $T_C = 125^\circ\text{C}$	$V_{GT}$	- - 0.1	0.8 1.2 -	Volts
<b>Holding current</b> (Anode voltage = 7V, initiating current = 20mA) $T_C = 25^\circ\text{C}$ $T_C = -40^\circ\text{C}$	$I_H$	- -	5 10	mA

Note 2: Forward current applied for 1 ms maximum duration, duty cycle  $\leq 1\%$ .

Note 3:  $R_{GK}$  current is not included in measurement.

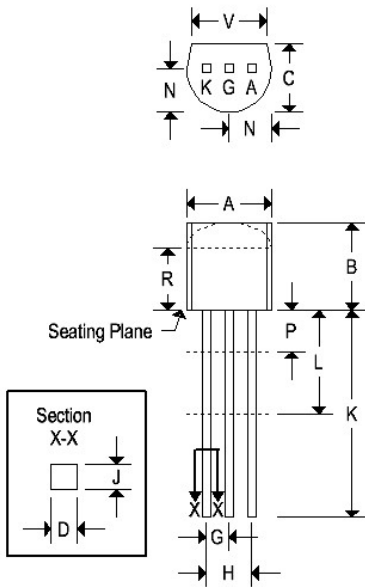
# DIGITRON SEMICONDUCTORS

BRX44-BRX49

SILICON CONTROLLED RECTIFIERS  
0.8 AMP, 30 – 400 VOLTS

## MECHANICAL CHARACTERISTICS

Case	TO-92
Marking	Body painted, alpha-numeric
Pin out	See below



	TO-92			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.175	0.205	4.450	5.200
B	0.170	0.210	4.320	5.330
C	0.125	0.165	3.180	4.190
D	0.016	0.022	0.410	0.550
F	0.016	0.019	0.410	0.480
G	0.045	0.055	1.150	1.390
H	0.095	0.105	2.420	2.660
J	0.015	0.020	0.390	0.500
K	0.500	-	12.700	-
L	0.250	-	6.350	-
N	0.080	0.105	2.040	2.660
P	-	0.100	-	2.540
R	0.115	-	2.930	-
V	0.135	-	3.430	-

FIGURE 1 — CURRENT DERATING  
(REFERENCE: CASE TEMPERATURE)

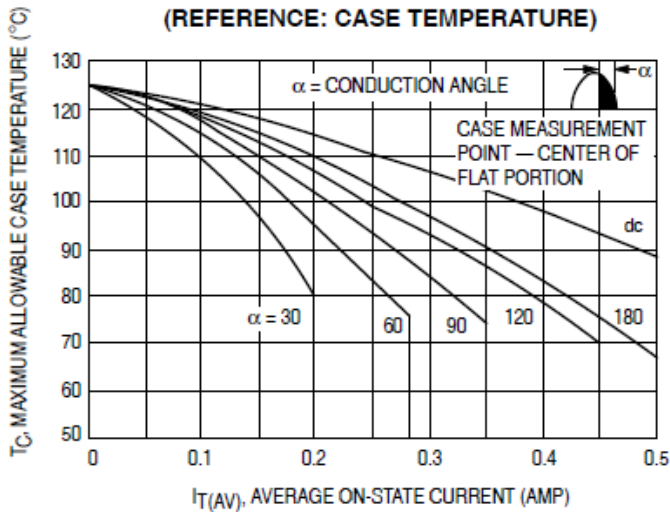


FIGURE 2 — CURRENT DERATING  
(REFERENCE: AMBIENT TEMPERATURE)

