DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

BRX44-BRX49

SILICON CONTROLLED RECTIFIER

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Characteristics	Symbol	Value	Units
Peak repetitive forward and reverse blocking voltage(1) (T_J = 25 to 125°C, R_{GK} = 1000Ω) BRX44 BRX45 BRX46 BRX47 BRX49	V_{DRM}, V_{RRM}	 30 60 100 200 400	Volts
Forward current RMS (all conduction angles)	$I_{T(RMS)}$	0.8	Amps
Peak forward surge current (T_A = 25°C, ½ cycle, sine wave, 60Hz)	I_{TSM}	8	Amps
Circuit fusing considerations (T_A = 25°C, t = 8.3ms)	I^2t	0.15	A^2s
Forward peak gate power (T_A = 25°C)	P_{GM}	0.1	Watt
Forward peak gate current (T_A = 25°C) (300µs, 120 PPS)	I_{GM}	1	Amps
Peak reverse gate voltage	V_{GRM}	5	Volts
Operating junction temperature range @ rated V_{RRM} and V_{DRM}	T_J	-40 to +125	°C
Storage temperature range	T_{stg}	-40 to +150	°C
Lead solder temperature (<1.5mm from case, 10 sec. max.)		+230	°C
Thermal Resistance, junction to case	$R_{\theta JC}$	75	°C/W
Thermal Resistance, junction to ambient	$R_{\theta JA}$	200	°C/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_C 25°C, R_{GK} = 1000Ω unless otherwise noted)

Characteristic	Symbol	Min	Max	Units
Peak forward blocking current (V_D = rated V_{DRM} @ T_C = 125°C)	I_{DRM}	-	100	µA
Peak reverse blocking current (V_R = rated V_{RRM} @ T_C = 125°C)	I_{RRM}	-	100	µA
Forward "on" voltage(2) (I_{TM} = 1A peak @ T_A = 25°C)	V_{TM}	-	1.7	Volts
Gate trigger current (continuous dc)(3) (Anode voltage = 7V, R_L = 100Ω, T_C = 25°C)	I_{GT}	-	200	µA

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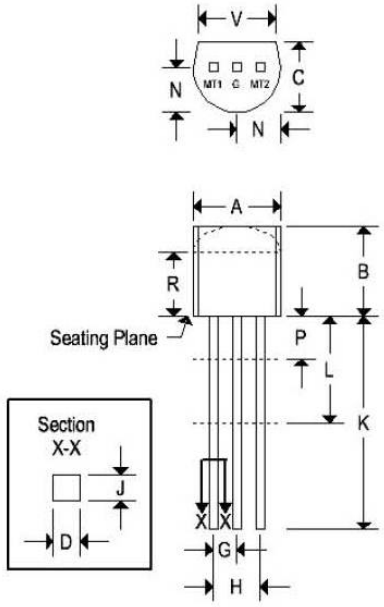
ELECTRICAL CHARACTERISTICS (T_C 25°C, R_{GK} = 1000Ω unless otherwise noted)

Characteristic	Symbol	Min	Max	Units
Gate trigger voltage (continuous dc)	V_{GT}			Volts
(Anode voltage = 7V, R_L = 100Ω)				
(Anode voltage = rated V_{DRM}, R_L = 100Ω)				
T_C = 25°C		-	0.8	
T_C = -40°C		-	1.2	
T_C = 125°C		0.1	-	
Holding current	I_H			mA
(Anode voltage = 7V, initiating current = 20mA)				
T_C = 25°C		-	5	
T_C = -40°C		-	10	

Note 2: Forward current applied for 1 ms maximum duration, duty cycle ≤ 1%.
Note 3: R_{GK} current is not included in measurement.

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	-

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FIGURE 1 — CURRENT DERATING (REFERENCE: CASE TEMPERATURE)

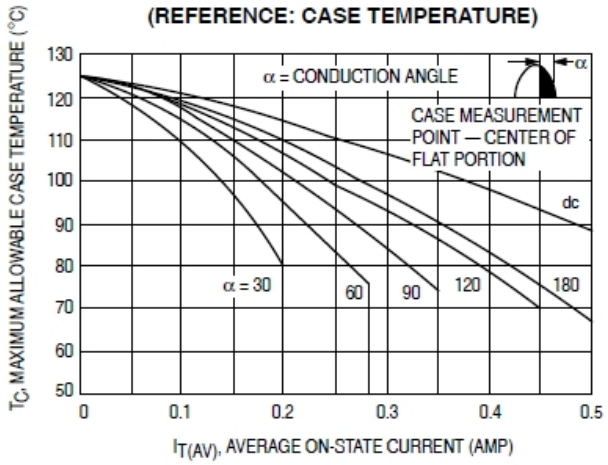

FIGURE 2 — CURRENT DERATING (REFERENCE: AMBIENT TEMPERATURE)