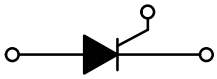
Silicon Controlled Rectifiers

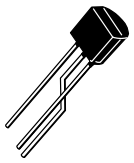
BRY55-30* thru 600*

SCRs
0.8 AMPERE RMS
30 TO 600 VOLTS

PNPN devices designed for high volume, line-powered consumer applications such as relay and lamp drivers, small motor controls, gate drivers for larger thyristors, and sensing and detection circuits. Supplied in an inexpensive TO-226AA (TO-92) package which is readily adaptable for use in automatic insertion equipment.

- Sensitive Gate Trigger Current — 200 μA Maximum
- Low Reverse and Forward Blocking Current — 100 μA Maximum, T_C = 125°C
- Low Holding Current — 5 mA Maximum
- Glass-Passivated Surface for Reliability and Uniformity





CASE 29-04
(TO-226AA)
STYLE 3
WITH TO-18 LEADFORM*

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted.)

Rating	Symbol	Value	Unit
Peak Repetitive Forward and Reverse Blocking Voltage(1) (R_{GK} = 1000 Ω, T_J = 25 to 125°C) Marking: BRY55-1 . . . BRY55-30 -2 . . . BRY55-60 -3 . . . BRY55-100 -4 . . . BRY55-200 -6 . . . BRY55-400 -7 . . . BRY55-500 -8 . . . BRY55-600	V_{RRM}, V_{DRM}	 30 60 100 200 400 500 600	Volts
Forward Current RMS (All Conduction Angles)	$I_{T(RMS)}$	0.8	Amp
Peak Forward Surge Current, T_A = 25°C (1/2 Cycle, Sine Wave, 60 Hz)	I_{TSM}	8	Amps
Circuit Fusing Considerations, T_A = 25°C (t = 8.3 ms)	I^2t	0.15	A^2s
Peak Gate Power — Forward, T_A = 25°C	P_{GM}	0.1	Watt
Peak Gate Current Forward, T_A = 25°C (300 μs, 120 PPS)	I_{GFM}	1	Amp
Peak Gate Voltage — Reverse	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 (< 1.5 mm from case, 10 s max.)		+230	°C

***European part numbers only. Package is Case 29 with Leadform 18.**

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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	75	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	°C/W

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

Characteristic		Symbol	Min	Max	Unit
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(1) (I_{TM} = 1 A Peak @ T_A = 25°C)		V_{TM}	—	1.7	Volts
Gate Trigger Current (Continuous dc)(2) (Anode Voltage = 7 Vdc, R_L = 100 Ohms)	T_C = 25°C	I_{GT}	—	200	μA
Gate Trigger Voltage (Continuous dc)	T_C = 25°C	V_{GT}	—	0.8	Volts
(Anode Voltage = 7 Vdc, R_L = 100 Ohms)	T_C = –40°C		—	1.2	
(Anode Voltage = Rated V_{DRM}, R_L = 100 Ohms)	T_C = 125°C		0.1	—	
Holding Current	T_C = 25°C	I_H	—	5	mA
(Anode Voltage = 7 Vdc, initiating current = 20 mA)	T_C = –40°C		—	10	

1. Forward current applied for 1 ms maximum duration, duty cycle ⩽ 1%.
2. R_{GK} current is not included in measurement.
3. MARKING: BRY55-30 = BRY55-1
   BRY55-60 = BRY55-2
   BRY55-100 = BRY55-3
   BRY55-200 = BRY55-4
   BRY55-400 = BRY55-6
   BRY55-500 = BRY55-7
   BRY55-600 = BRY55-8

FIGURE 1 — CURRENT DERATING (REFERENCE: CASE TEMPERATURE)

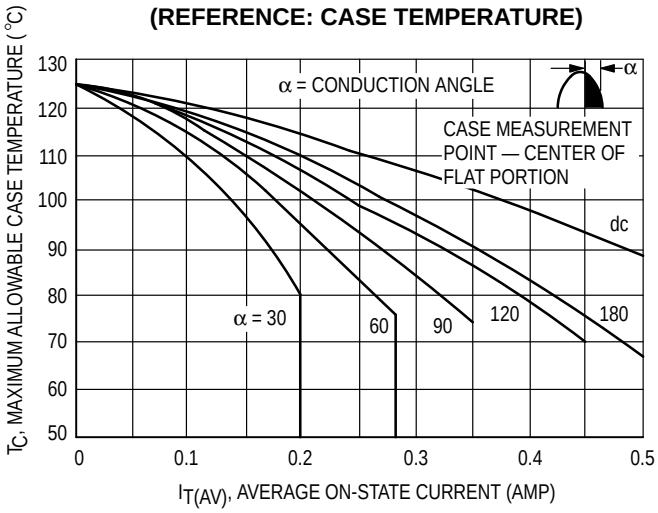
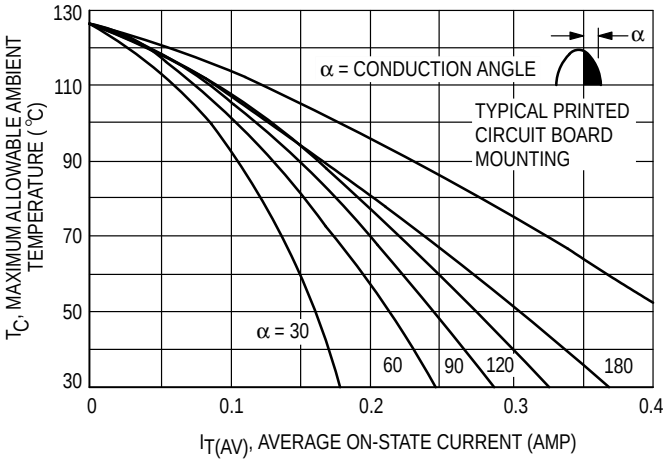
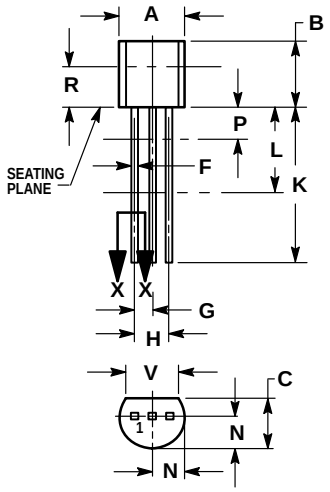
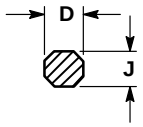


FIGURE 2 — CURRENT DERATING (REFERENCE: AMBIENT TEMPERATURE)



PACKAGE DIMENSIONS





SECTION X–X

STYLE 3:
PIN 1. ANODE
2. ANODE
3. CATHODE

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSION D AND J APPLY BETWEEN L AND K MINIMUM. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.022	0.41	0.55
F	0.016	0.019	0.41	0.48
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	—	12.70	—
L	0.250	—	6.35	—
N	0.080	0.105	2.04	2.66
P	—	0.100	—	2.54
R	0.115	—	2.93	—
V	0.135	—	3.43	—

CASE 029–04
(TO–226AA)

Literature Distribution Centers:
USA: Motorola Literature Distribution; P.O. Box 20912; Phoenix, Arizona 85036.
EUROPE: Motorola Ltd.; European Literature Centre; 88 Tanners Drive, Blakelands, Milton Keynes, MK14 5BP, England.
JAPAN: Nippon Motorola Ltd.; 4-32-1, Nishi-Gotanda, Shinagawa-ku, Tokyo 141, Japan.
ASIA PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Center, No. 2 Dai King Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong.