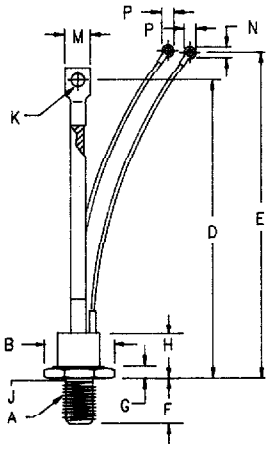
Silicon Controlled Rectifier
Series 151



Dim.	Inches		Millimeter		
	Minimum	Maximum	Minimum	Maximum	Notes
A	---	---	---	---	1
B	1.237	1.243	31.42	31.55	Across flats
D	7.428	7.671	188.67	194.84	
E	7.382	8.100	187.50	205.74	
F	1.047	1.077	26.59	27.36	
G	.365	.385	9.27	9.78	
H	---	1.383	---	35.13	
J	.660	.749	16.76	19.02	2
K	.338	.348	8.59	8.84	Dia.
M	.625	.687	15.88	17.45	
N	.140	.150	3.56	3.81	Dia.
P	---	.295	---	7.49	

TO-209AB (TO-93)

Notes:
1. 3/4-16 UNF-3A
2. Full threads within 2 1/2 threads
3. For insulated cathode lead, add suffix "IL" to catalog number.

Microsemi Catalog Number	Forward & Reverse Repetitive Blocking	Reverse Transient Blocking
15102G0A	200	300
15104G0A	400	500
15106G0A	600	700
15108G0A	800	900
15110G0A	1000	1100
15112G0A	1200	1300

To specify dv/dt other than 200V/usec.. contact factory.

- High dv/dt-200 V/usec.
- 3500 Amperes surge current capability
- Low forward on-state voltage
- Primarily for line commutated converters
- Economical for general purpose phase control applications

Electrical Characteristics

Max. RMS on-state current	$I_{T(RMS)}$	235 Amps	T_C = 74°C
Max. average on-state cur.	$I_{T(AV)}$	150 Amps	T_C = 74°C
Max. peak on-state voltage	V_{TM}	1.7 Volts	I_{TM} = 500 A(peak)
Max. holding current	I_H	200 mA	
Max. peak one cycle surge current	I_{TSM}	3500A	I_C = 74°C, 60Hz
Max. I^2t capability for fusing	I^2t	50,000A^2S	t = 8.3 ms

Thermal and Mechanical Characteristics

Operating junction temp range	T_J	-40°C to 125°C
Storage temperature range	T_{STG}	-40°C to 150°C
Maximum thermal resistance	$R_{\theta JC}$	0.20°C/W Junction to case
Typical thermal resistance	$R_{\theta CS}$	0.40°C/W Case to sink
Max mounting torque		300 inch pounds maximum
Weight		Approximately 7.4 ounces (211.1 grams) typical

Microsemi Corp.
Colorado

PH: 303-469-2161
FAX: 303-466-3775

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Switching

Critical rate of rise of on-state current (note 1)	di/dt	100A/usec.	T_J = 125°C
Typical delay time (note 1)	t_d	3.0 usec.	
Typical circuit commuted turn-off time (note 2)	t_q	100 usec.	T_J = 125°C

Note 1: I_{TM} = 100A, V_D = V_{DRM}, V_{GT} = 12V open circuit, 20 ohm-0.1 usec rise time
Note 2: I_{TM} = 100A, di/dt = 5A/usec, V_R during turn-off internal = 50V min, reapplied dv/dt = 20V/usec., linear to rated V_{DRM}, V_{GT} = 0V

Triggering

Max. gate voltage to trigger	V_{GT}	3.0V	T_J = 25°C
Typical gate voltage to trigger	V_{GT}	1.0V	T_J = 25°C
Max. nontriggering gate voltage	V_{GD}	0.25V	T_J = 125°C
Max. gate current to trigger	I_{GT}	150mA	T_J = 25°C
Typical gate current to trigger	I_{GT}	48mA	T_J = 25°C
Max. peak gate power	P_{GM}	10W	
Average gate power	$P_{G(AV)}$	2.0W	t_p = 10 usec.
Max. peak gate current	I_{GM}	2.0A	
Max. peak gate voltage (forward)	V_{GM}	10V	
Max. peak gate voltage (reverse)	V_{GM}	5.0V	

Blocking

Max. leakage current	I_{DRM}	15mA	T_J =125°C & V_{DRM}
Max. reverse leakage	I_{RRM}	15mA	T_J =125°C & V_{RRM}
Critical rate of rise of off-state voltage	dv/dt	200V/usec.	T_J =125°C

F

Figure 1
Typical Forward On-State Characteristics

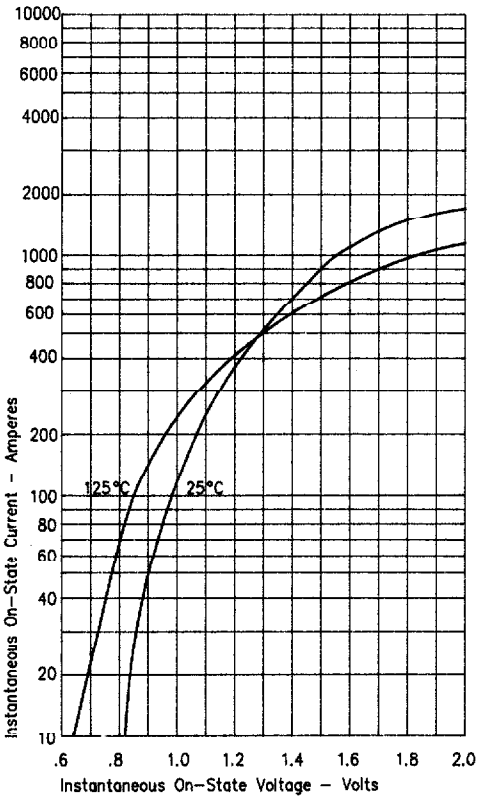

Figure 2
Forward Current Derating

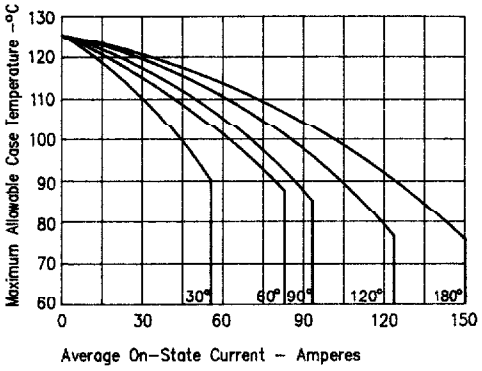

Figure 3
Maximum Power Dissipation

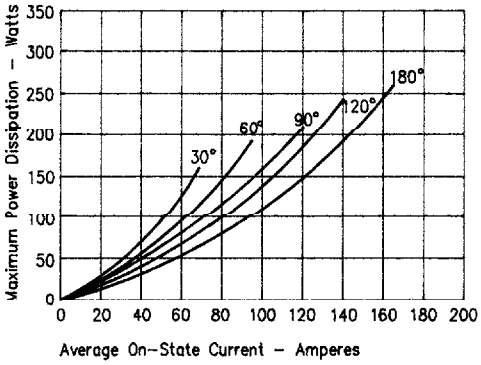

Figure 4
Transient Thermal Impedance

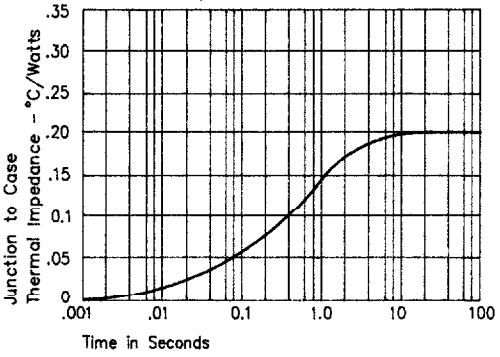

Figure 5
Maximum Nonrepetitive Surge Current