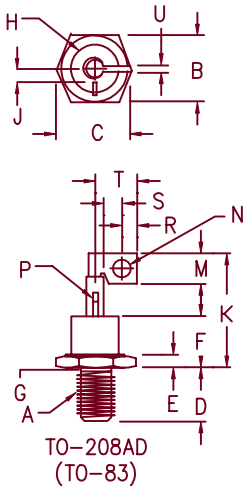
Silicon Controlled Rectifiers

2N1794–1804; 2N4371–4377



TO–208AD
(TO–83)

Note 1: 1/2–20 UNF–3A
Note 2: Full thread within 2 1/2 threads

Dim.	Inches		Millimeter		
	Minimum	Maximum	Minimum	Maximum	Notes
A	---	---	---	---	1
B	1.050	1.060	26.67	26.92	
C	---	1.161	---	29.49	
D	.797	.827	20.24	21.01	
E	.276	.286	.701	7.26	
F	---	.948	---	24.08	
G	.425	.499	10.80	12.67	2
H	---	.900	---	22.86	Dia.
J	.225	.275	6.48	6.99	
K	---	1.750	---	44.45	
M	.370	.380	9.40	9.65	
N	.213	.223	5.41	5.66	Dia.
P	.065	.075	1.65	1.91	Dia.
R	.215	.225	5.46	5.72	
S	.290	.315	7.37	8.00	
T	.514	.530	13.06	13.46	
U	.089	.099	2.26	2.51	

Microsemi Catalog Number	Microsemi Catalog Number	V_{DRM}/V_{RRM}
	2N4371	100
2N1794	2N4372	200
2N1795		250
2N1796		300
2N1797	2N4373	400
2N1798		500
2N1799	2N4374	600
2N1800		720
2N1801		720
2N1802	2N4375	800
2N1803		900
2N1804	2N4376	1000
	2N4377	1200

- High dv/dt–100 V/usec.
- 1600 Amperes surge current
- Low forward on–state voltage
- Package conforming to TO–208AD outline
- Economical for general purpose phase control applications

Electrical Characteristics

Max. RMS on–state current	$I_{T(RMS)}$	110 Amps	T_C = 87°C
Max. average on–state cur.	$I_{T(AV)}$	70 Amps	T_C = 87°C
Max. peak on–state voltage	V_{TM}	1.6 Volts	I_{TM} = 220 A(peak)
Max. holding current	I_H	200 mA	
Max. peak one cycle surge current	I_{TSM}	1600 A	T_C = 87°C, 60 Hz
Max. I^2t capability for fusing	I^2t	10,624A^2S	t = 8.3 ms

Thermal and Mechanical Characteristics

Operating junction temp range	T_J	–65°C to 125°C
Storage temperature range	T_{STG}	–65°C to 150°C
Maximum thermal resistance	$R_{\theta JC}$	0.40°C/W Junction to case
Typical thermal resistance (greased)	$R_{\theta CS}$	0.20°C/W Case to sink
Mounting torque		100–130 inch pounds
Weight		3.24 ounces (91.8 grams) typical

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10–6–00 Rev. IR

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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} = 50A, V_D = V_{DRM}. V_{GT} = 12V open circuit, 20 ohm–0.1 usec. rise time
Note 2: I_{TM} = 50A, di/dt = 5A/usec., V_R during turn-off interval = 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
Max. nontriggering gate voltage	V_{GD}	0.25V	T_J = 125°C
Max. gate current to trigger	I_{GT}	100mA	T_J = 25°C
Max. peak gate power	P_{GM}	15W	
Average gate power	$P_{G(AV)}$	3.0W	t_p = 10 usec.
Max. peak gate current	I_{GM}	4.0A	
Max. peak gate voltage (forward)	V_{GM}	10V	
Max. peak gate voltage (reverse)	V_{GM}	5.0V	

Blocking

Max. leakage current	I_{DRM}, I_{RRM}	10mA	T_J =125°C & V_{DRM},V_{RRM}
Max. reverse leakage	I_{RRM}, I_{DRM}	100 μA	T_J =25°C & V_{RRM},V_{RRM}
Critical rate of rise of off-state voltage	dv/dt	100V/usec.	T_J =125°C

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Figure 1
Typical Forward On–State Characteristics

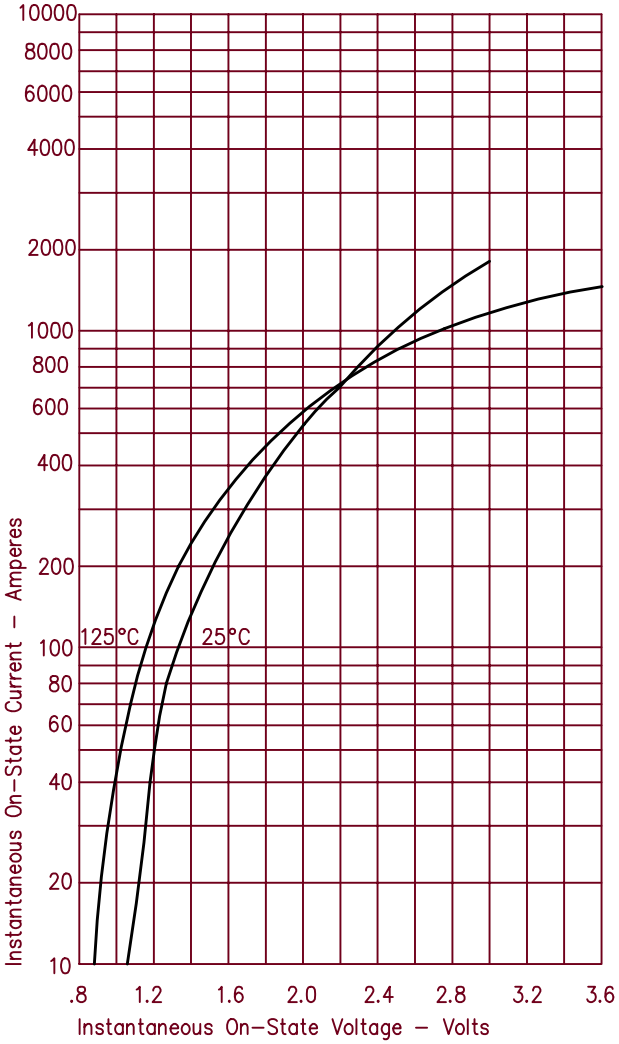

Figure 2
Forward Current Derating

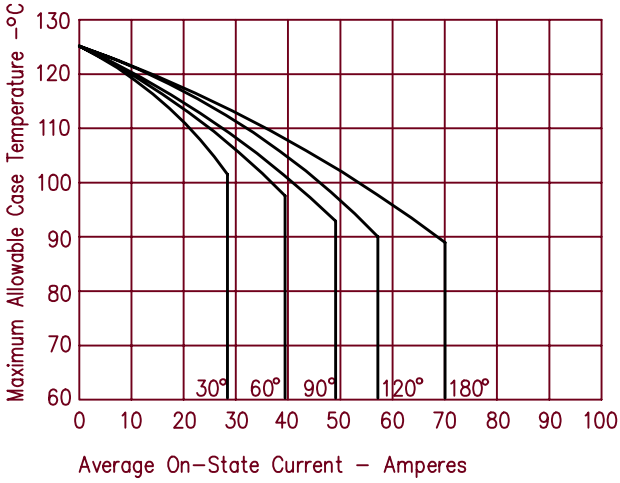

Figure 3
Maximum Power Dissipation

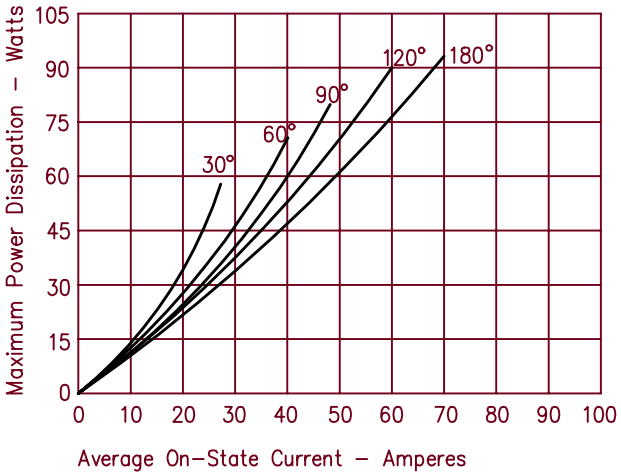

Figure 4
Transient Thermal Impedance