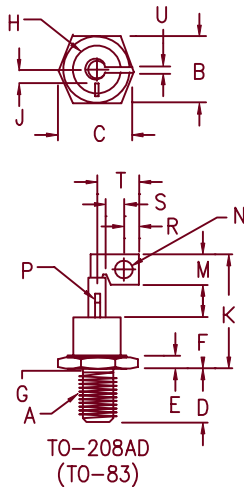


# Silicon Controlled Rectifiers

## 2N1794–1804; 2N4371–4377



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

Dim.	Inches		Millimeter		Notes
	Minimum	Maximum	Minimum	Maximum	
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 <sub>DRM</sub> /V <sub>RRM</sub>
	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 <sub>T(RMS)</sub> 110 Amps	T <sub>C</sub> = 87°C
Max. average on–state cur.	I <sub>T(AV)</sub> 70 Amps	T <sub>C</sub> = 87°C
Max. peak on–state voltage	V <sub>TM</sub> 1.6 Volts	I <sub>TM</sub> = 220 A(peak)
Max. holding current	I <sub>H</sub> 200 mA	
Max. peak one cycle surge current	I <sub>TSM</sub> 1600 A	T <sub>C</sub> = 87°C, 60 Hz
Max. I <sup>2</sup> t capability for fusing	I <sup>2</sup> t 10,624A <sup>2</sup> S	t = 8.3 ms

### Thermal and Mechanical Characteristics

Operating junction temp range	T <sub>J</sub>	–65°C to 125°C
Storage temperature range	T <sub>STG</sub>	–65°C to 150°C
Maximum thermal resistance	R <sub>θJC</sub>	0.40°C/W Junction to case
Typical thermal resistance (greased)	R <sub>θCS</sub>	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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## Switching

Critical rate of rise of on–state current (note 1)	$di/dt$	100A/usec.	$T_J = 125^\circ\text{C}$
Typical delay time (note 1)	$t_d$	3.0 usec.	
Typical circuit commuted turn–off time (note 2)	$t_q$	100 usec.	$T_J = 125^\circ\text{C}$

Note 1:  $I_{TM} = 50\text{A}$ ,  $V_D = V_{DRM}$ ,  $V_{GT} = 12\text{V}$  open circuit, 20 ohm–0.1 usec. rise time

Note 2:  $I_{TM} = 50\text{A}$ ,  $di/dt = 5\text{A/usec.}$ ,  $V_R$  during turn–off interval = 50V min.,  
reapplied  $dv/dt = 20\text{V/usec.}$ , linear to rated  $V_{DRM}$ ,  $V_{GT} = 0\text{V}$

## Triggering

Max. gate voltage to trigger	$V_{GT}$	3.0V	$T_J = 25^\circ\text{C}$
Max. nontriggering gate voltage	$V_{GD}$	0.25V	$T_J = 125^\circ\text{C}$
Max. gate current to trigger	$I_{GT}$	100mA	$T_J = 25^\circ\text{C}$
Max. peak gate power	$P_{GM}$	15W	
Average gate power	$P_{G(AV)}$	3.0W	$t_p = 10 \text{ usec.}$
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	$T_J = 125^\circ\text{C} \ \& \ V_{DRM}, V_{RRM}$
Max. reverse leakage	$I_{RRM}, I_{DRM}$	100 $\mu\text{A}$	$T_J = 25^\circ\text{C} \ \& \ V_{RRM}, V_{RRM}$
Critical rate of rise of off–state voltage	$dv/dt$	100V/usec.	$T_J = 125^\circ\text{C}$

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Figure 1  
Typical Forward On-State Characteristics

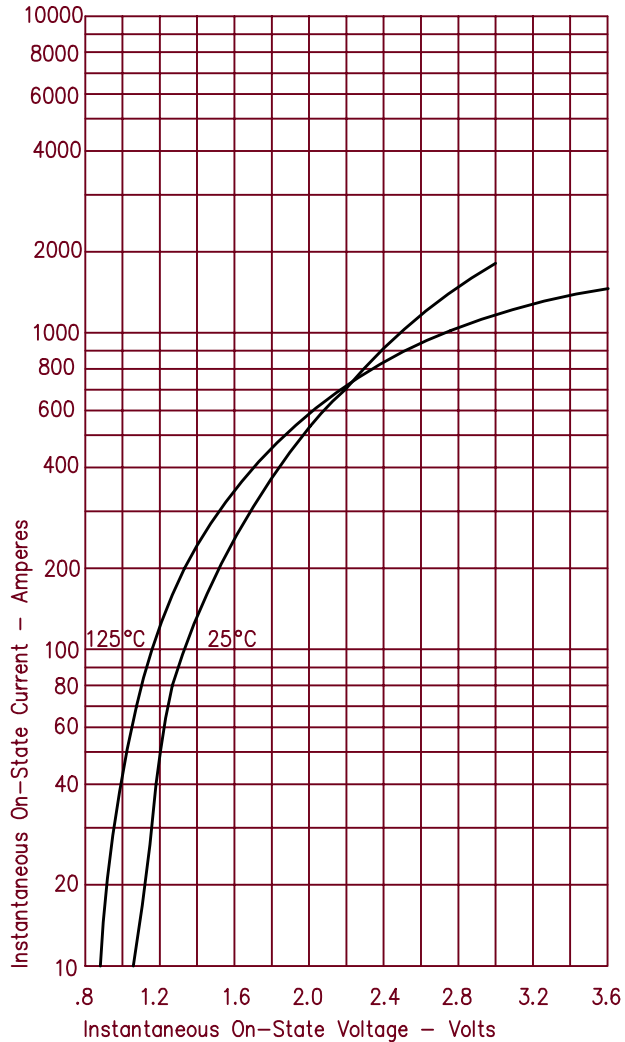


Figure 3  
Maximum Power Dissipation

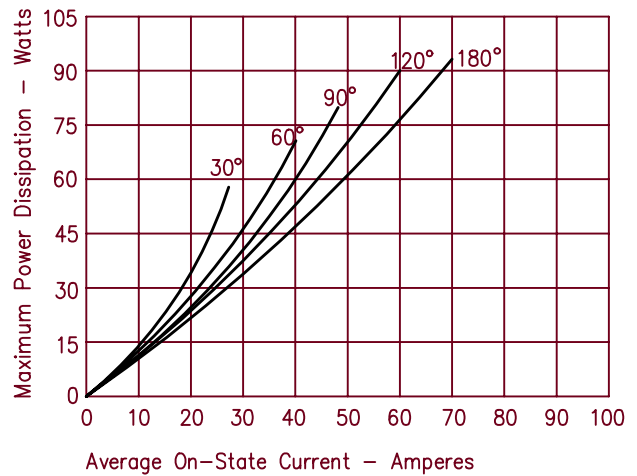


Figure 4  
Transient Thermal Impedance

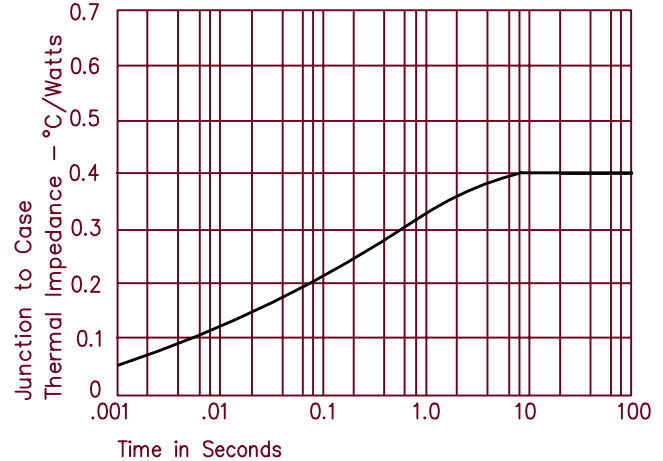


Figure 2  
Forward Current Derating

