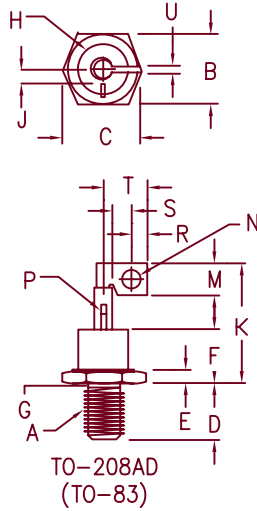


# Silicon Controlled Rectifiers (fast)

## 2N1794F — 2N1800F



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	

Catalog Number	Forward & Reverse
2N1792F	50V
2N1793F	100V
2N1795F	200V
2N1797F	300V
2N1798F	400V
2N1799F	500V
2N1800F	600V

- 1000 Amperes surge current
- 200V/ $\mu$ S dv/dt
- Fast Turnoff Series 40  $\mu$ S turn-off time

### Electrical Characteristics

Max. RMS on-state current	$I_T(\text{RMS})$ 110 Amps	$T_C = 87^\circ\text{C}$
Max. average on-state cur.	$I_T(\text{AV})$ 70 Amps	$T_C = 87^\circ\text{C}$
Max. peak on-state voltage	$V_{TM}$ 2.1 Volts	$I_{TM} = 220 \text{ A(peak)}$
Max. holding current	$I_H$ 75 mA	
Max. peak one cycle surge current	$I_{TSM}$ 1000 A	$T_C = 87^\circ\text{C}, 60 \text{ Hz}$
Max. $I^2t$ capability for fusing	$I^2t$ 4,150A <sup>2</sup> S	$t = 8.3 \text{ ms}$

### 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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04-25-07 Rev. 1

# 2N1794F — 2N1800F

## 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)	$t_q$	40 usec.	$T_J = 100^\circ\text{C}$

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:  $I_{TM} = 50\text{A}$ ,  $di/dt = 50\text{A (pk)}$ ,  $t_{on} = 100 + 50\text{usec}$ ,  $-di/dt = 25\text{A/usec}$ ,  $V_R = 50\text{V}$   
 $dv/dt = 20\text{V/usec}$ ,  $V_{DRM} = \text{rated}$

## 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	$I_{GT}$	70mA	$T_J = 25^\circ\text{C}$
Max. peak gate power	$P_{GM}$	5W	
Average gate power	$P_{G(AV)}$	0.5W	$t_p = 10 \text{ usec.}$
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	$I_{DRM}$	5mA	$T_J = 125^\circ\text{C} \ \& \ V_{DRM}$
Max. reverse leakage	$I_{RRM}$	5mA	$T_J = 125^\circ\text{C} \ \& \ V_{RRM}$
Critical rate of rise of off-state voltage	$dv/dt$	200V/usec.	$T_J = 125^\circ\text{C}$

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Figure 1  
Typical Forward On-State Characteristics

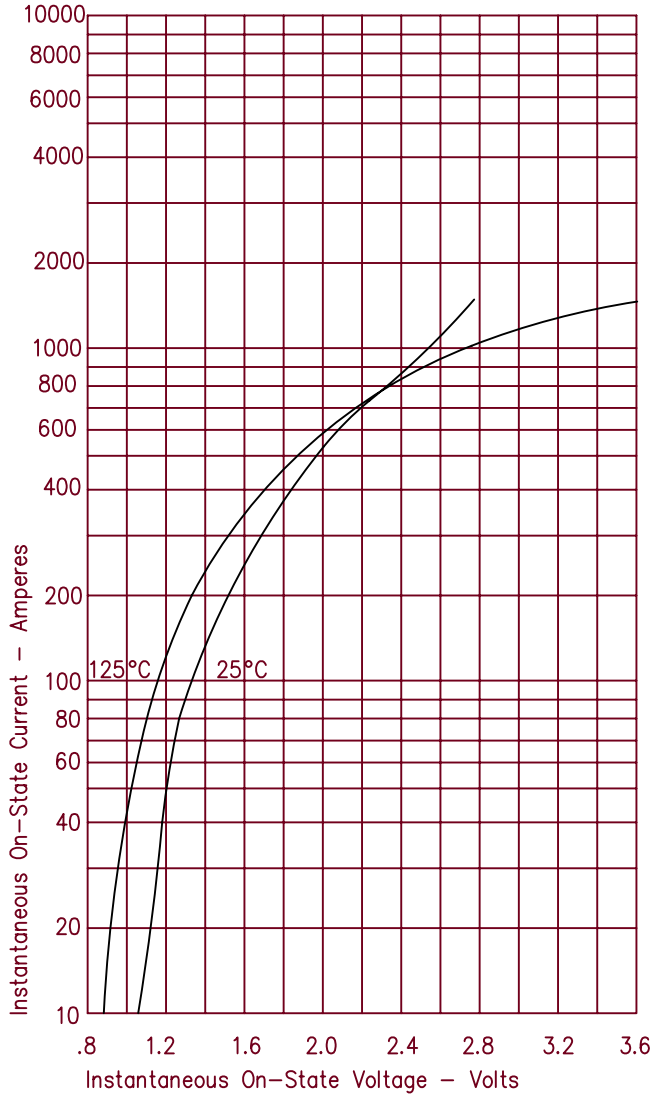


Figure 3  
Transient Thermal Impedance

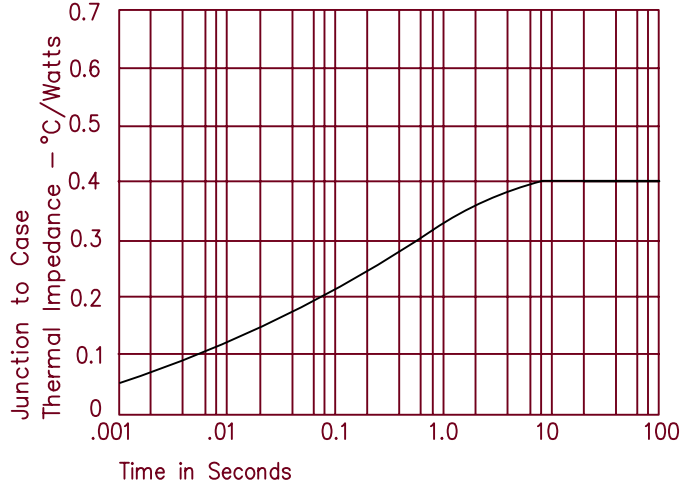


Figure 2  
Forward Current Derating

