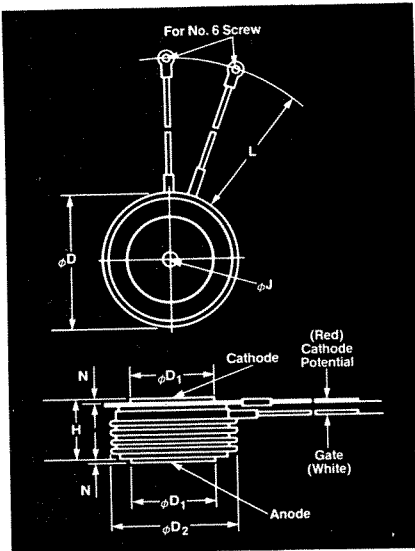


Fast Switching SCR T82F

750A Avg.
(1180A RMS)
Up to 1200 Volts
25-60 μ s



Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
ϕD	2.250	2.290	57.15	58.17
ϕD_1	1.333	1.343	33.86	34.11
ϕD_2	2.030	2.090	51.56	53.09
H	1.020	1.060	25.91	26.92
ϕJ	.135	.145	3.43	3.68
J_1	.075	.090	1.91	2.29
L	7.75	8.50	196.85	215.90
N	.040		1.02	

Creep Distance—1.00 in. min. (25.40 mm).
Strike Distance—.69 in. min. (17.53 mm).
(In accordance with NEMA standards)
Finish—Nickel Plate.
Approx. Weight—8 oz. (227 g).
Dimension "H" is a clamped dimension.



T82 Outline

Features:

- Interdigitated, di/namic Gate structure
- Hard Commutation Turn-Off
- Forward Blocking Voltage Capabilities to 1200 Volts
- Low Switching Losses at High Frequency
- Soft Commutation (Feedback Diode) Testing Available
- High di/dt with soft gate control

Applications:

- Induction Heating
- Transportation
- Inverters
- Crowbars
- Cycloconverters

Ordering Information

Type	Voltage		Current		Turn-off		Gate current		Leads	
	V_{DRM} and V_{RRM} (V)	Code	$I_T(av)$ (A)	Code	t_q μ sec	Code	I_{GT} (ma)	Code	Case	Code
T82F	100	01	750	75	25	B	200	3	T82	DN
	200	02			30	5				
	300	03			40	4				
	400	04			50	3				
	500	05			60	2				
	600	06								
	700	07								
	800	08								
	900	09								
	1000	10								
	1100	11								
	1200	12								

Example: Obtain optimum device performance for your application by selecting proper Order Code.

Type T82F rated at 750 A average with $V_{DRM} = 1000V$, $I_{GT} = 200$ ma, $t_q = 30 \mu$ sec max. and leads—order as:

Type	Voltage	Current	Turn Off	Gate Current	Leads
T 8 2 F	1 0	7 5	5	3	D N

750A Avg. (1180A RMS) Up to 1200 Volts 25-60 μ s

Fast Switching SCR T82F

Voltage ②

Blocking State Maximums (T_J = 125°C) Symbol

Repetitive peak forward blocking voltage, V V _{DRM}
Repetitive peak reverse voltage, V V _{RRM}
Non-repetitive transient peak reverse voltage, t ≤ 5.0 msec, V V _{RSM}
Forward leakage current, mA peak I _{DRM}
Reverse leakage current, mA peak I _{RRM}

100	200	300	400	500	600	700	800	900	1000	1100	1200
100	200	300	400	500	600	700	800	900	1000	1100	1200
200	300	400	500	600	700	800	900	1000	1100	1200	1300

Current

Conducting State Maximums (T_J = 125°C) Symbol

Symbol	T82F __ 75
RMS forward current, A	I _{T(rms)} 1180
Ave. forward current, A	I _{T(av)} 750
One-half cycle surge current ③, A	I _{TSM} 10000
I ² t for fusing (for times ≥ 8.3 ms) A ² sec	I ² t 416,000
Forward voltage drop at I _{TM} = 1500A and T _J = 25°C, V	V _{TM} 1.75
Min. repetitive di/dt ①④⑥ A/μsec	di/dt 500

Switching

(T_J = 25°C) Symbol

Max. turn-off time, I _T = 1000A, T _J = 125°C, t _p = 100 μsec, di/dt = 50 A/μsec., reapplied dv/dt = 400 V/μsec linear to 0.8 V _{DRM} , μsec. ③⑦	t _q	25 to 60
Typ. delay time, I _{TM} = 1000A T _D = .8 V _{DRM} ④, μsec	t _d	.5
Min. critical dv/dt exponential to .8 V _{DRM} T _J = 125°C, V/μsec ②⑤	dv/dt	400
Min. di/dt non-repetitive, A/μsec ①④⑥	di/dt	1200

Gate

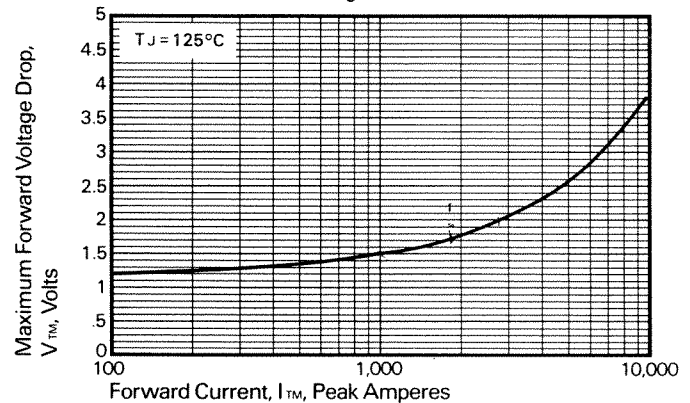
Maximum Parameters (T_J = 25°C) Symbol

Gate current to trigger at V _D = 12V, mA	I _{GT}	200
Gate voltage to trigger at V _D = 12V, V	V _{GT}	3
Non-triggering gate voltage, T _J = 125°C, and rated V _{DRM} , V	V _{GDM}	.25
Peak forward gate current, A	I _{GTM}	4
Peak reverse gate voltage, V	V _{GDM}	5
Peak gate power, Watts	P _{GM}	16
Average gate power, Watts	P _{G(av)}	3

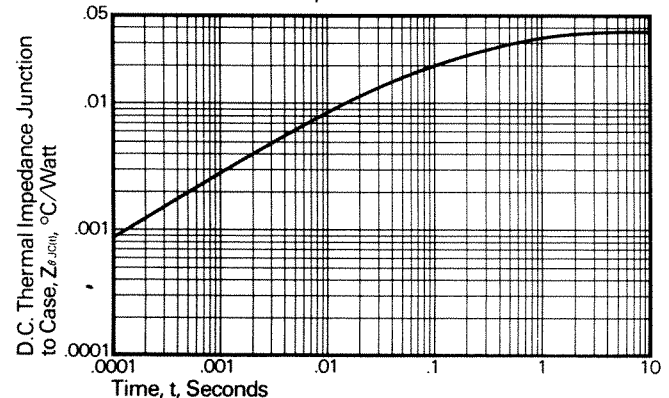
Thermal and Mechanical

Symbol	
Min., Max. oper. junction temp., °C	T _J -40 to +125
Min., Max. storage temp., °C	T _{stg} -40 to +150
Max. mounting force, lb. ①	3000 to 3500
Thermal resistance ①, double- side cooling, junction to case, °C/Watt	R _{θJC} .037
Case to sink, lubricated, °C/Watt	R _{θcs} .02

Maximum Forward Voltage VS. Forward Current



D.C. Thermal Impedance Junction to Case, Z_θJC, °C/Watt



- ① Consult recommended mounting procedures.
- ② Applies for zero or negative gate bias.
- ③ Per JEDEC RS-397, 5.2.2.1.
- ④ With recommended gate drive.
- ⑤ Higher dv/dt ratings available, consult factory.
- ⑥ Per JEDEC standard RS-397, 5.2.2.6.
- ⑦ For operation with antiparallel diode, consult factory.

FAST SWITCHING
THYRISTORS