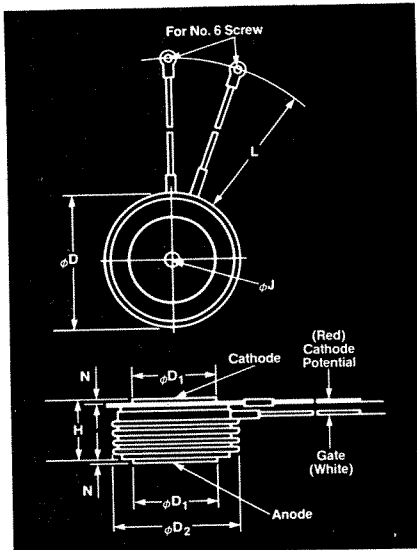


Fast Switching SCR T82F

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	
Code	V _{DRM} and V _{RRM} (V)	Code	I _{T(av)} (A)	Code	t _q μsec	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 ($T_J = 125^\circ\text{C}$) **Symbol**

Repetitive peak forward blocking voltage, V V_{DRM}

Repetitive peak reverse voltage, V V_{RRM}

Non-repetitive transient peak reverse voltage,
 $t \leq 5.0 \text{ msec}$, 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
($T_J = 125^\circ\text{C}$)

Symbol

T82F __ 75

RMS forward current, A $I_T(\text{rms})$

1180

Ave. forward current, A $I_T(\text{av})$

750

One-half cycle surge current ③, A I_{TSM}

10000

I^2t for fusing (for times $\geq 8.3 \text{ ms}$)
A² sec I^2t

416,000

Forward voltage drop at $I_{TM} = 1500\text{A}$
and $T_J = 25^\circ\text{C}$, V V_{TM}

1.75

Min. repetitive di/dt ①④⑥ A/ μsec di/dt

500

Switching

($T_J = 25^\circ\text{C}$)

Symbol

Max. turn-off time, $I_T = 1000\text{A}$, $T_J = 125^\circ\text{C}$,

$t_p = 100 \mu\text{sec}$, $di/dt = 50$

A/ μsec , reappplied $dv/dt =$

400 V/ μsec linear to 0.8 V_{DRM} , μsec . ③⑦

t_q

25 to 60

Typ. delay time, $I_{TM} = 1000\text{A}$

t_d

.5

$T_D = .8 V_{DRM}$ ④, μsec

Min. critical dv/dt exponential to .8

V_{DRM} $T_J = 125^\circ\text{C}$, V/ μsec ②⑤

dv/dt

400

Min. di/dt non-repetitive, A/ μsec ①④⑥

di/dt

1200

Gate

Maximum Parameters
($T_J = 25^\circ\text{C}$)

Symbol

Gate current to trigger at $V_D = 12\text{V}$, mA I_{GT}

200

Gate voltage to trigger at $V_D = 12\text{V}$, V V_{GT}

3

Non-triggering gate voltage, $T_J = 125^\circ\text{C}$,
and rated V_{DRM} , V V_{GDM}

.25

Peak forward gate current, A I_{GTM}

4

Peak reverse gate voltage, V V_{GRM}

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., $^\circ\text{C}$ T_J

-40 to +125

Min., Max. storage temp., $^\circ\text{C}$ T_{stg}

-40 to +150

Max. mounting force, lb. ①

3000 to 3500

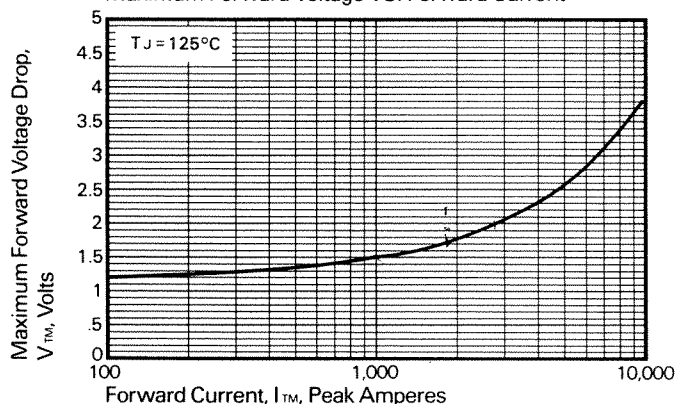
Thermal resistance ①, double-
side cooling, junction to case,
 $^\circ\text{C}/\text{Watt}$ $R_{\theta JC}$

.037

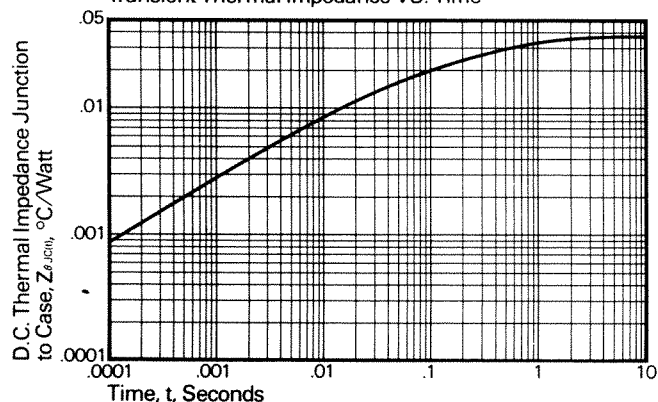
Case to sink, lubricated, $^\circ\text{C}/\text{Watt}$ $R_{\theta CS}$

.02

Maximum Forward Voltage VS. Forward Current



Transient Thermal Impedance VS. Time



- 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.