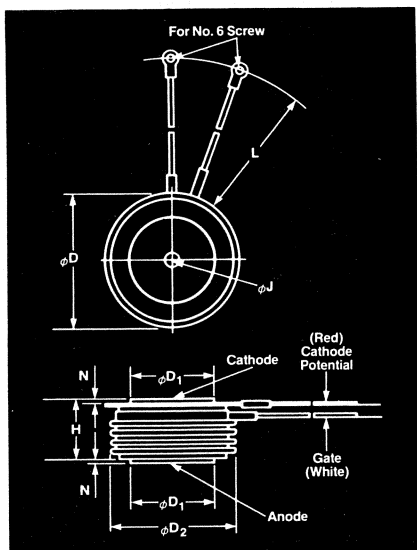


Fast Switching SCR T82F

650A Avg.
(1000A RMS)
Up to 1200 Volts
15-50 μ sec



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 μ sec	Code	I_{GT} (ma)	Code	Case	Code
T82F	100	01	650	65	15	7 6 8 5 4 3 K	200 250	3 2	T82	DN
	200	02			20					
	300	03			25					
	400	04			30					
	500	05			40					
	600	06			50					
	700	07			100					
	800	08								
	900	09								
	1000	10								
	1100	11								
	1200	12								

1400

14

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

Type T82F rated at 650 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	6 5	5	3	D N

**650A Avg.
(1000A RMS)
Up to 1200 Volts
15-50 μ sec**

**Fast Switching
SCR
T82F**

Voltage ①

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,
 $t \leq 5.0$ 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 -- 65

RMS forward current, A $I_T(\text{rms})$ 1000
Ave. forward current, A $I_T(\text{av})$ 650
One-half cycle surge current ③, A I_{TSM} 8500
 I^2t for fusing (for times ≥ 8.3 ms)
A² sec I^2t 300,000
Forward voltage drop at $I_{TM} = 1500\text{A}$
and $T_J = 25^\circ\text{C}$, V V_{TM} 2.2
Min. repetitive di/dt ①④⑤ A/ μ sec di/dt 400

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/ μ sec., reappplied $dv/dt =$
400 V/ μ sec linear to 0.8 V $_{DRM}$, μsec . ③⑦ t_q 15 to 50
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/ μ sec ②⑤ dv/dt 400
Min. di/dt non-repetitive, A/ μ sec ①④⑤ di/dt 1000

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 3600 to 4000
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

3000 to 3500

- 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.

