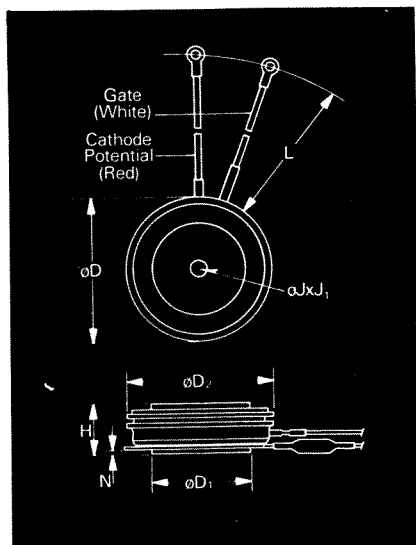


Fast Switching SCR T7SH_60

**600A Avg.
(950 RMS)
Up to 800 Volts
20-40 μ s**



Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
ϕD	1.850	1.900	45.72	48.26
ϕD_1	1.140	1.180	28.96	29.97
ϕD_2	1.760	1.850	44.70	46.99
H	.545	.605	13.84	15.37
ϕJ	.135	.145	3.43	3.68
J ₁	.072	.082	1.83	2.08
L	7.75	8.50	196.85	215.90
N	.025		.64	

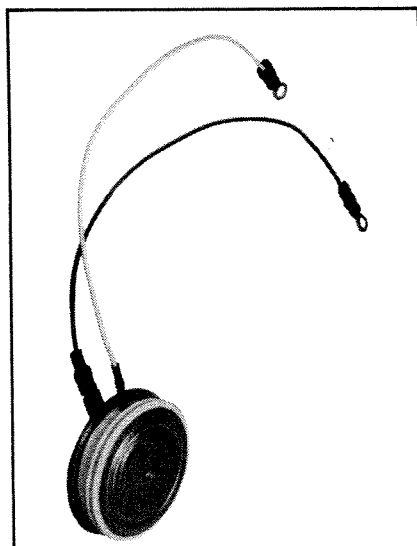
Creep Distance—.41 in. min. (10.41 mm).

Strike Distance—.35 in. min. (8.89 mm).

Finish-Nickel Plate.

Approx. Weight—4 oz. (113 g.)

1. Dimension "H" is a clamped dimension.



T7S Outline

Features:

- Interdigitated, di/namic Gate structure
- Hard Commutation Turn-Off
- Forward Blocking Voltage Capabilities to 800 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

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 usec	Code	I _{GT} (ma)	Code	Case	Code
T7SH	100	01	600	60	20	6 8 5 4	150	4	T7S	DN
	200	02			25					
	300	03			30					
	400	04			40					
	500	05								
	600	06								
	700	07								
	800	08								

Example

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

Type T7SH rated at 600A average with V_{DRM} = 400V
I_{GT} = 150 ma, t_q = 30 μ sec max. and leads—order as:

Type	Voltage	Current	Turn Off	Gate Current	Leads
T 7 S H	0 4	6 0	5	4	D N

**600A Avg.
(950 RMS)
Up to 800 Volts
20-40 μ s**

**Fast Switching
SCR
T7SH_60**

Voltage ①

Blocking State Maximums ($T_J = 125^\circ\text{C}$)

Repetitive peak forward blocking voltage, V . . .
Repetitive peak reverse voltage, V
Non-repetitive transient peak reverse voltage,
 $t \leq 5.0$ msec, V

Symbol

V_{DRM}
 V_{RRM}
 V_{RSM}

100	200	300	400	500	600	700	800
100	200	300	400	500	600	700	800
200	300	400	500	600	700	800	900

Forward leakage current, mA peak
Reverse leakage current, mA peak

I_{DRM}
 I_{RRM}

35	35
----	----

Current

Conducting State Maximums
($T_J = 125^\circ\text{C}$)

Symbol

T7SH_60

RMS forward current, A
Ave. forward current, A
One-half cycle surge current③, A . . .
 I^2t for fusing (for times ≥ 8.3 ms)
A² sec.
Forward voltage drop at $I_T = 1500$ A
and $T_J = 25^\circ\text{C}$, V
Min. repetitive di/dt ①④⑤ A/ μ sec . . .

$I_T(rms)$
 $I_T(av)$
 I_{TSM}
 I^2t
 V_{TM}
 di/dt

950
600
9000
338,000
1.55
600

Switching

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

Symbol

Max. turn-off time, $I_T = 400$ A, $T_J = 125^\circ\text{C}$
 $t_p = 100$ μ sec, $dirR/dt = 25$
A/ μ sec., reapplied $dv/dt =$
200V/ μ sec. linear to 0.8 V_{DRM} , μ sec. ④⑤ t_q
Typ. delay time, $I_{TM} = 1000$ A
 $T_D = .8$ V_{DRM} ④, μ sec t_d
Typ turn-on-time $I_{TM} = 1000$ A, μ sec t_{on}
Min. critical dv/dt exponential to .8
 V_{DRM} , $T_J = 125^\circ\text{C}$, V/ μ sec ②④ dv/dt
Min. di/dt , non-repetitive, A/ μ sec ①④⑤ di/dt

20 to 40
.5
3.0
300
1200

Gate

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

Symbol

Gate current to trigger at $V_D = 12$ V, mA I_{GT}
Gate voltage to trigger at $V_D = 12$ V, V V_{GT}
Non-triggering gate voltage, $T_J = 125^\circ\text{C}$,
and rated V_{DRM} , V V_{GDM}
Peak forward gate current, A I_{GTM}
Peak reverse gate voltage, V V_{GRM}
Peak gate power, Watts P_{GM}
Average gate power, Watts $P_{G(av)}$

150
3
.25
4
5
16
3

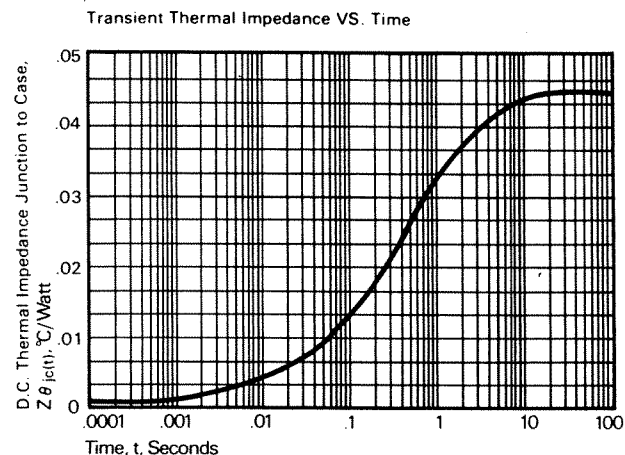
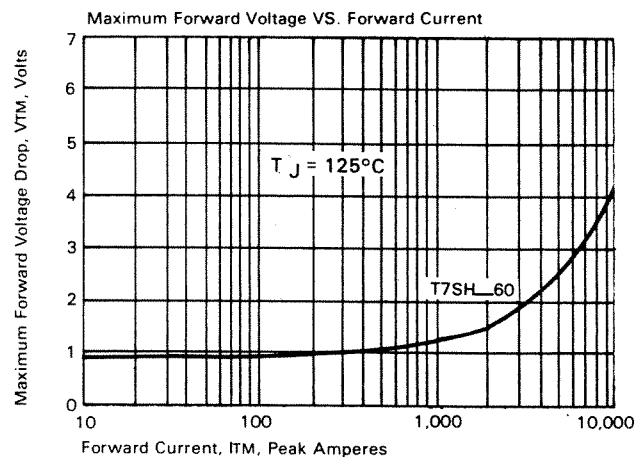
Thermal and Mechanical

Symbol

Min., Max. oper. junction temp., $^\circ\text{C}$
Min., Max. storage temp., $^\circ\text{C}$
Max. mounting force, lb. ①
Thermal resistance①, double-
side cooling, junction to case,
 $^\circ\text{C}/\text{Watt}$
Case to sink, lubricated, $^\circ\text{C}/\text{Watt}$

T_J
 T_{stg}
2000 to 2400
 $R_{\theta JC}$
 $R_{\theta CS}$
.045
.06
.02

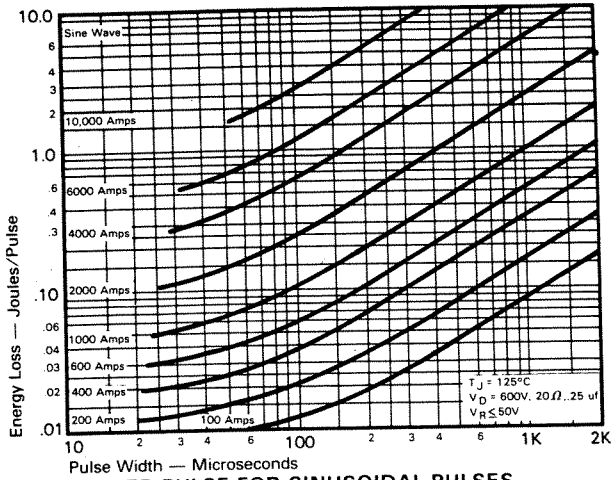
- ① Consult recommended mounting procedures.
- ② Applies for zero or negative gate bias.
- ③ Per JEDEC RS-397, 5.2.2.1.
- ④ With recommended gate drive.
- ⑤ Higher dv/dt ratings available, consult factory.
- ⑥ Per JEDEC standard RS-397, 5.2.2.6.
- ⑦ For operation with antiparallel diode, consult factory.



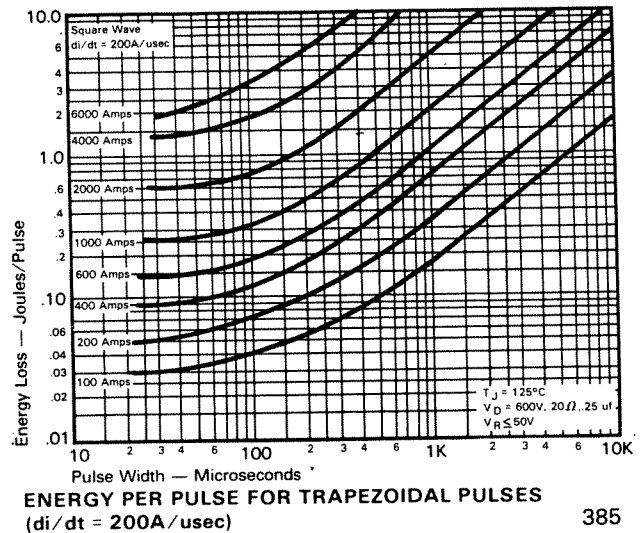
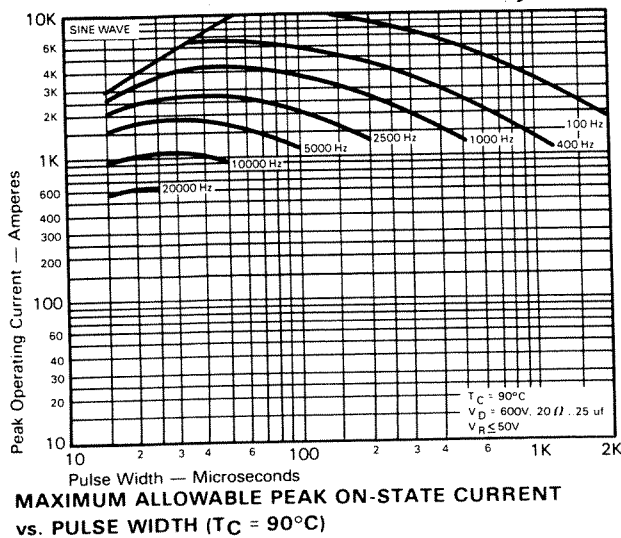
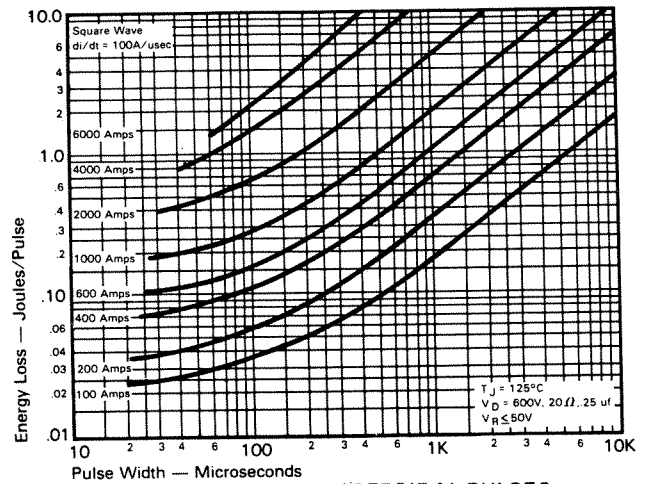
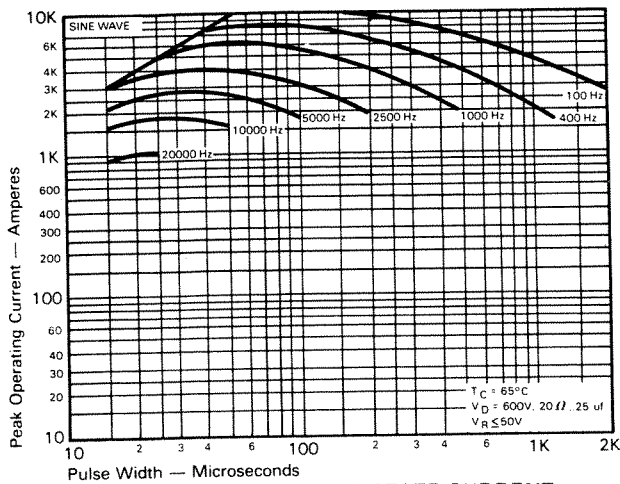
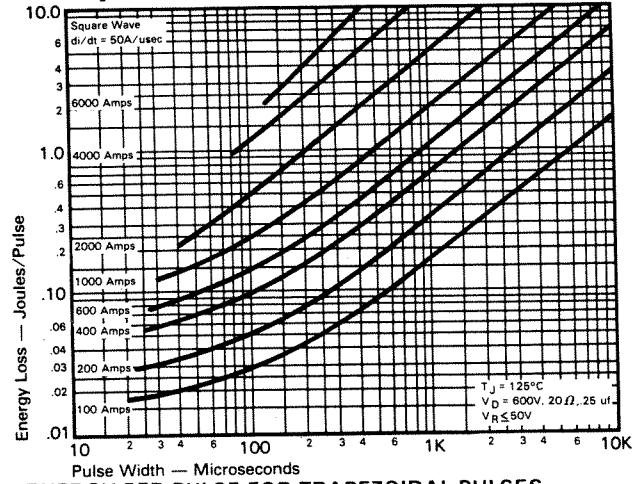
Fast Switching SCR T7SH_60

600A Avg.
(950 RMS)
Up to 800 Volts
20-40 μ s

Sinusoidal Current Data



Trapezoidal Wave Current Data



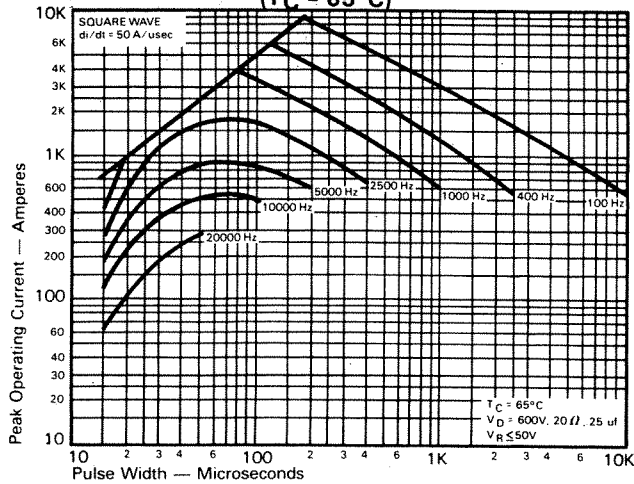
FAST SWITCHING
THYRISTORS

600A Avg.
(950 RMS)
Up to 800 Volts
20-40 μ s

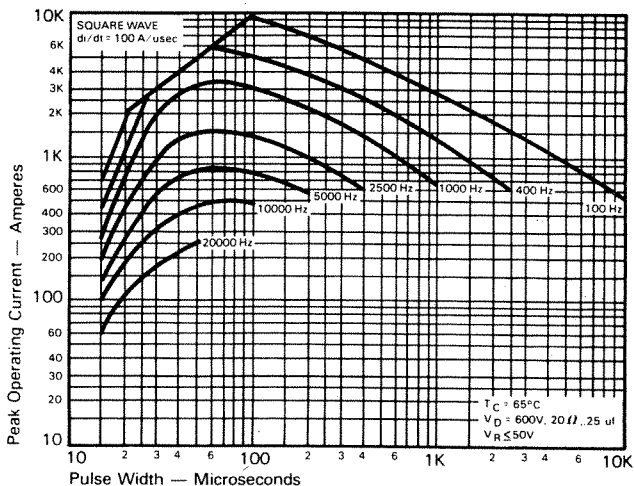
Fast Switching
SCR
T7SH_60

Trapezoidal Wave Current Data

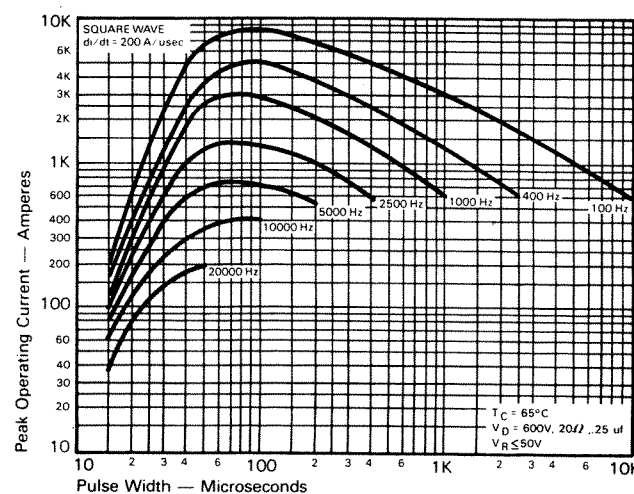
($T_C = 65^\circ\text{C}$)



MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 50\text{A/usec}$)



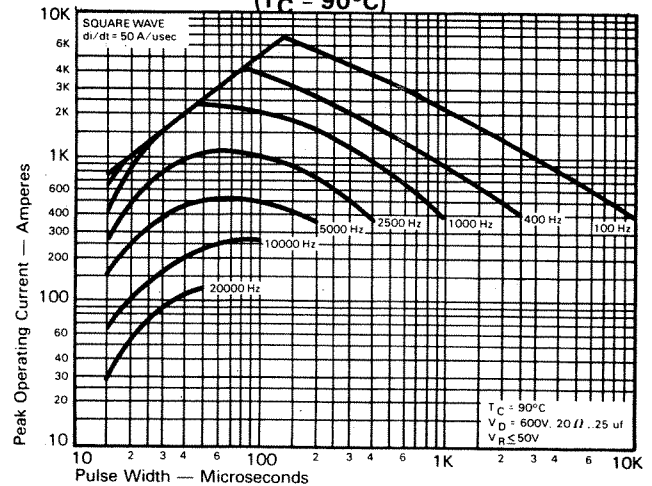
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 100\text{A/usec}$)



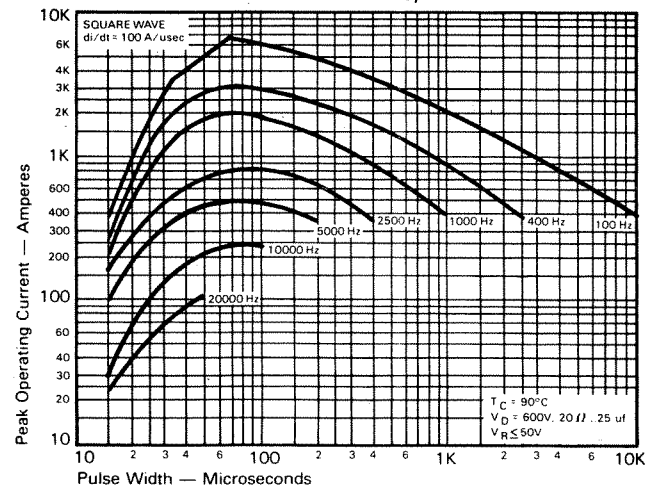
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 200\text{A/usec}$)

Trapezoidal Wave Current Data

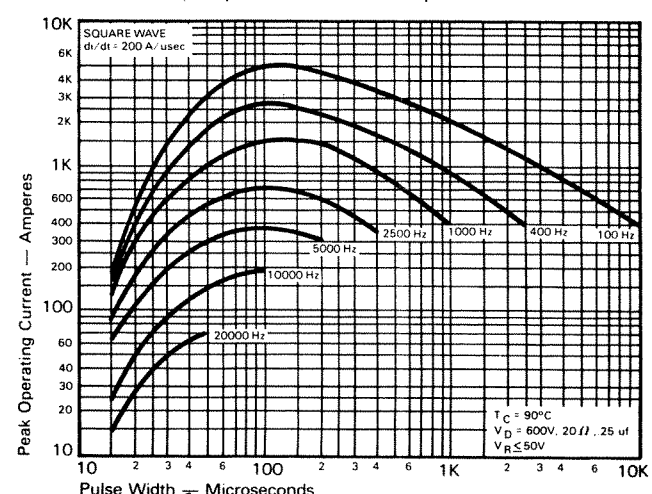
($T_C = 90^\circ\text{C}$)



MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 50\text{A/usec}$)



MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 100\text{A/usec}$)



MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 200\text{A/usec}$)