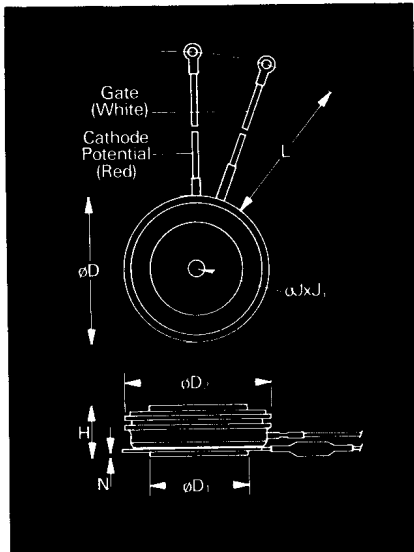


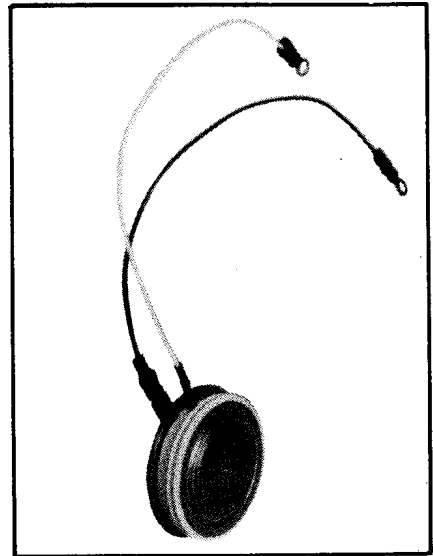
Fast Switching SCR T7S7_60

600A Avg.
(943 RMS)
Up to 1400 Volts
15-60 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:

- Center fired di/namic gate
- High di/dt with soft gate control
- High frequency operation
- Sinusoidal waveform operation to 20KHz
- Rectangular waveform operation to 20KHz
- Low dynamic forward voltage drop
- Low switching losses at high frequency
- Lifetime Guarantee

Applications:

- Inverters
- UPS
- Induction heating
- AC motor drives
- Cycloconverters
- Choppers
- Crowbars

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
T7S7	100	01	600	60	15	7	150	4	T7S	DN
	200	02			20	6				
	300	03			25	5				
	400	04			30	5				
	500	05			40	4				
	600	06			50	3				
	700	07			60	2				
	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 T7S7 rated at 600 A average with $V_{DRM} = 1000V$,
 $I_{GT} = 150$ ma, $t_q = 30 \mu$ sec max. and standard control leads—order as:

Type	Voltage	Current	Turn Off	Gate Current	Leads
T 7 S 7	1 0	6 0	5	4	D N

*for maximum rating perimeters, consult factory

FAST SWITCHING
THYRISTORS

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SCR
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Voltage

Blocking State Maximums ^② ($T_J = 125^\circ\text{C}$)

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}

Symbol

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
						30					
						30					

Current

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

RMS forward current, A ... $I_T(\text{rms})$
 Ave. forward current, A ... $I_T(\text{av})$
 One-half cycle surge current^③, A ... I_{TSM}
 I^2t for fusing (for times ≥ 8.3 ms)
 A² sec. ... I^2t
 Forward voltage drop at $I_{TM} = 625$ A
 and $T_J = 25^\circ\text{C}$, V ... V_{TM}
 Min. repetitive di/dt A/ μ sec ... di/dt

Symbol

T7S7_60

$I_T(\text{rms})$	943
$I_T(\text{av})$	600
I_{TSM}	9000
I^2t	338,000
V_{TM}	1.45
di/dt	400

Switching

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

Max. turn-off time, $I_T = 400$ A
 $T_J = 125^\circ\text{C}$, $di/dt = 25$
 A/ μ sec, reappplied $dv/dt =$
 20 V/ μ sec linear to $0.8 V_{DRM}$, μ sec^④ t_q
 Typ. turn-on time, $I_T = 1000$ A
 $V_D = 300$ V^⑤, μ sec t_{on}
 Min. critical dv/dt , exponential to V_{DRM}
 $T_J = 125^\circ\text{C}$, V/ μ sec^⑥ dv/dt
 Min. di/dt non-repetitive,
 A/ μ sec^⑦ di/dt

Symbol

t_q	15 to 60
t_{on}	3.0
dv/dt	300
di/dt	800

Gate

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

Gate current to trigger at $V_D = 12$ V, mA ... I_{GT} 150
 Gate voltage to trigger at $V_D = 12$ V, V ... V_{GT} 3
 Non-triggering gate voltage, $T_J = 125^\circ\text{C}$,
 and rated V_{DRM} , V ... V_{GDM} 0.15
 Peak forward gate current, A ... I_{GTM} 4
 Peak reverse gate voltage, V ... V_{GRM} 5
 Peak gate power, Watts ... PGM 16
 Average gate power, Watts ... PG(av) 3

Symbol

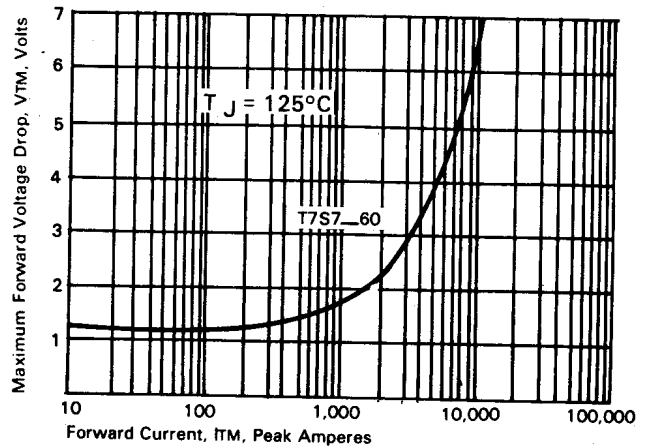
Thermal and Mechanical

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. ^⑧ ... 2000 to 2400
 Max. Thermal resistance ^⑨ Double side cooled
 Junction to case, $^\circ\text{C}/\text{Watt}$... $R_{\theta JC}$.035
 Case to sink, lubricated, $^\circ\text{C}/\text{Watt}$... $R_{\theta CS}$.02

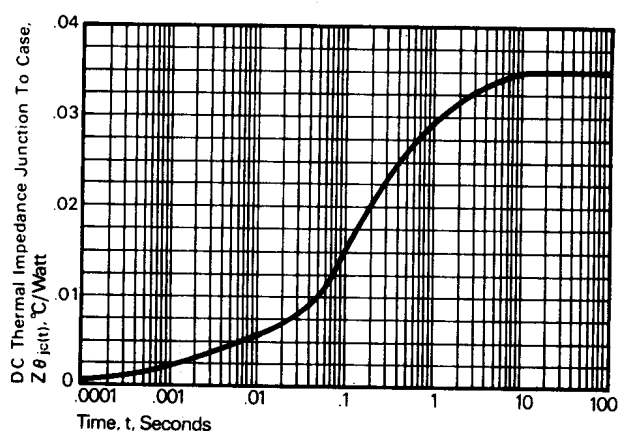
Symbol

- 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.

Maximum Forward Voltage Drop VS Forward Current



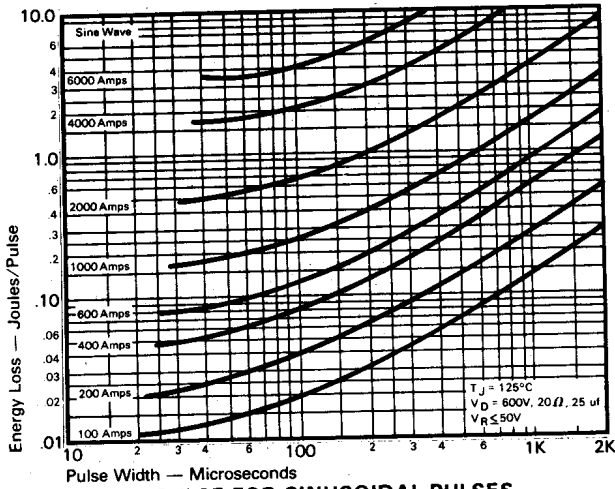
Transient Thermal Impedance VS. Time



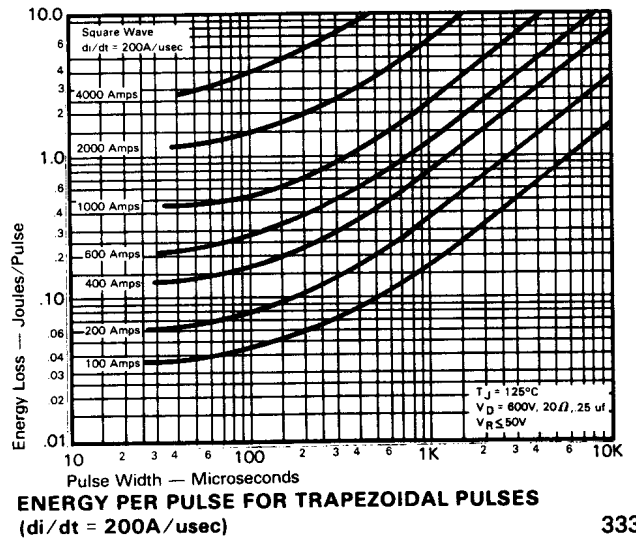
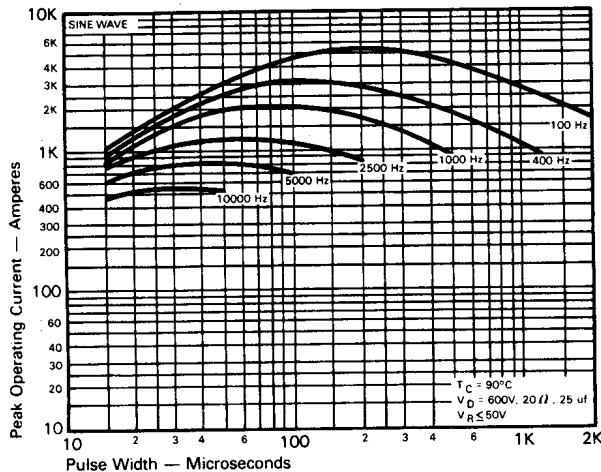
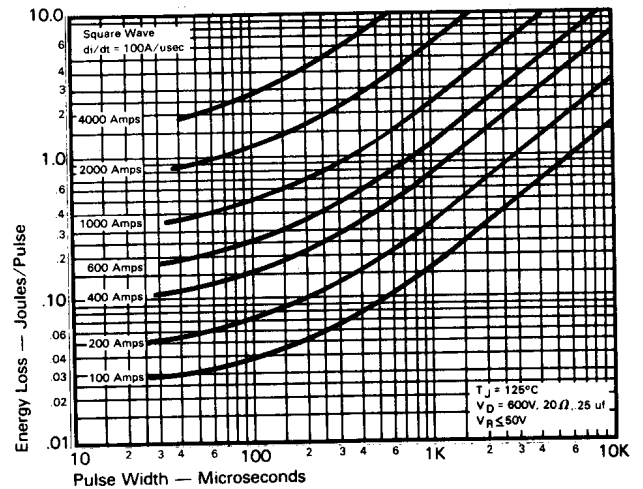
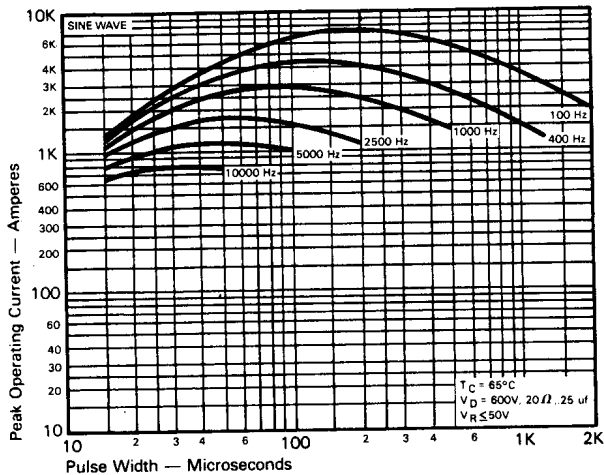
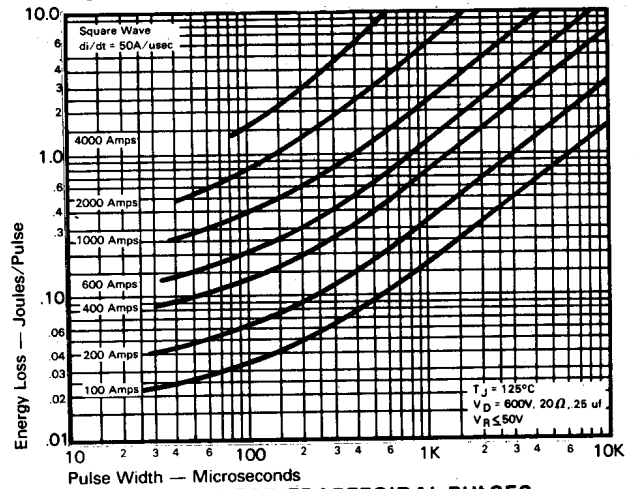
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Sinusoidal Current Data



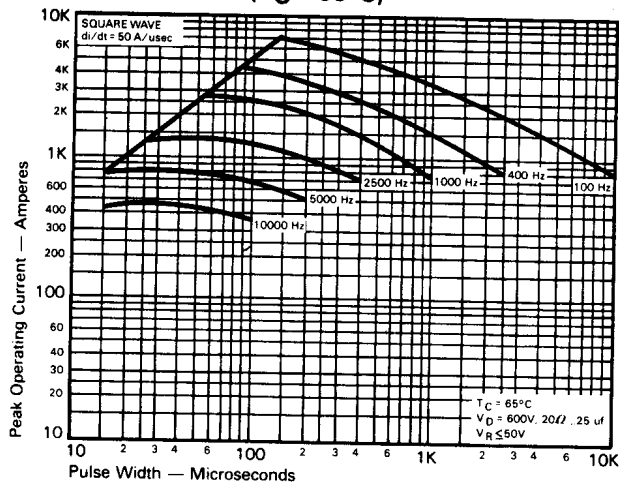
Trapezoidal Wave Current Data



600A Avg.
(943 RMS)
Up to 1400 Volts
15-60 μ s

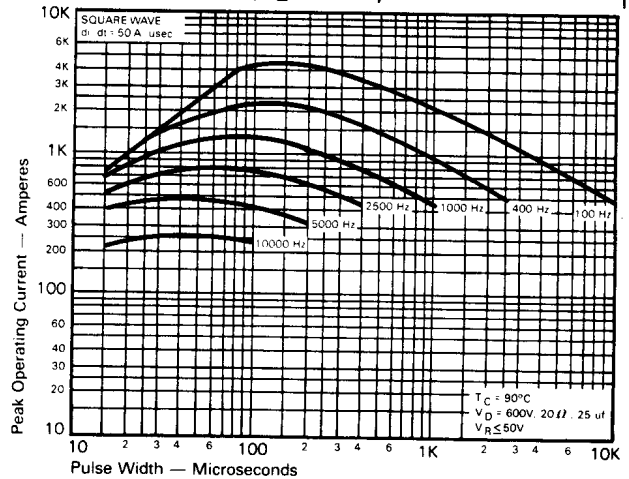
Fast Switching
SCR
T7S7_60

Trapezoidal Wave Current Data
($T_C = 65^\circ\text{C}$)

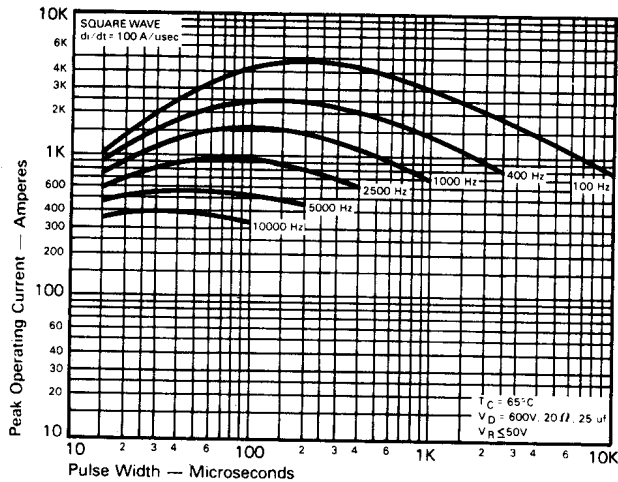


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ($di/dt = 50\text{A/usec}$)

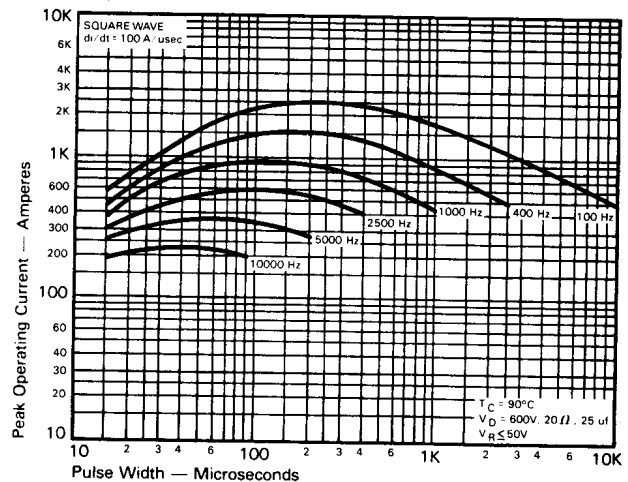
Trapezoidal Wave Current Data
($T_C = 90^\circ\text{C}$)



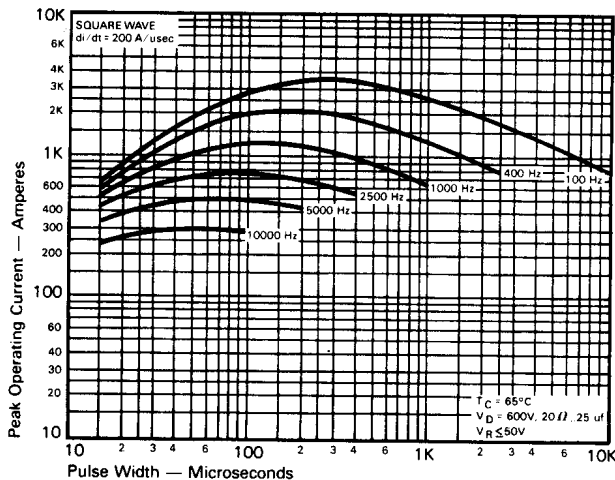
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ($di/dt = 50\text{A/usec}$)



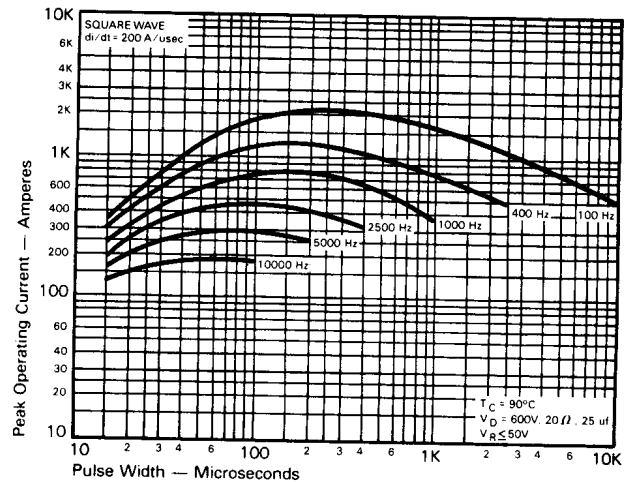
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ($di/dt = 100\text{A/usec}$)



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



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



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

FAST SWITCHING THYRISTORS