Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

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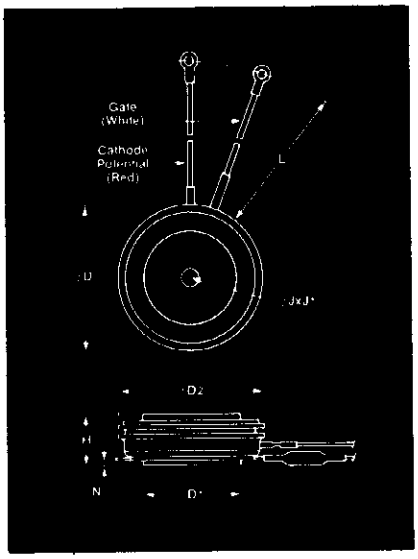
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

Fast Switching SCR T7SH__46

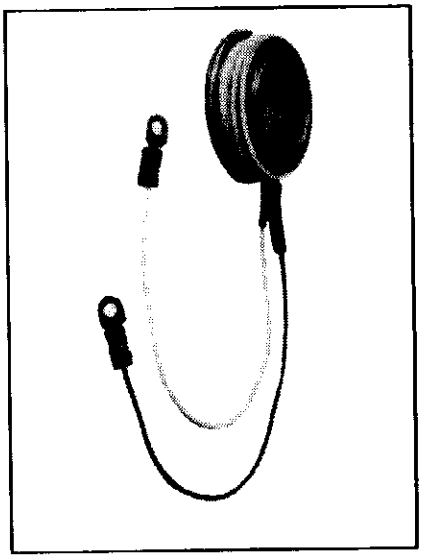
460A Avg. (720A RMS) 1400-1800 Volts 80-100 μsec



T7S Outline

Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
ØD	1.850	1.900	45.72	48.26
$ØD_1$	1.140	1.180	28.96	29.97
$ØD_2$	1.760	1.850	44.70	46.99
H	.545	.605	13.84	15.37
ØJ	.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—.408 in min. (10.36 mm).
Strike Distance—.203 in min. (5.16 mm).
Finish—Nickel Plate.
Approx. Weight—4 oz. (113 g).
1. Dimension "H" is a clamped dimension.



Features:
- Interdigitated, di/namic Gate Structure
- Hard Commutation Turn-Off
- Forward Blocking Voltage Capabilities to 1800 Volts
- Low Switching Losses at High Frequency
- Soft Cummutation (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
	V_{DRM} and V_{RRM} (V)		$I_{T(av)}$ (A)	tq μsec		I_{GT} (ma)	Case
T7SH	1400 1600 1800	14 16 18	460	80 100	8 10	150	T7S

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

Type T7SH rated at 460A average with V_{DRM} = 1600V, I_{GT} = 150 ma, tq = 80 μsec max. and leads—order as:

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

460A Avg. (720A RMS) 1400-1800 Volts 80-100 μsec

Fast Switching SCR T7SH__46

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, $t \leq 5.0$ msec, V	V_{RSM}
Forward leakage current, mA peak	I_{DRM}
Reverse leakage current, mA peak	I_{RRM}

1400	1600	1800
1400	1600	1800
1500	1700	1900

35
35

Current

Conducting State Maximums (T_J = 125°C)	Symbol	T7SH__46
RMS forward current, A	$I_{T(rms)}$	720
Ave. forward current, A	$I_{T(av)}$	460
One-half cycle surge current ③, A	I_{TSM}	6800
I^2t for fusing (for times ≥ 8.3 ms) A^2 sec	I^2t	301,000
Forward voltage drop at I_{TM} = 1500A and T_J = 25°C, V	V_{TM}	2.2
Min. repetitive di/dt ①④⑥ A/μsec	di/dt	400

Switching

(T_J = 25°C)	Symbol	
Max. turn-off time, I_T = 400A, T_J = 125°C, tp = 100 μsec. di_R/dt = 25 A/μsec., reapplied dv/dt = 200 V/μsec linear to 0.8 V_{DRM}, μsec. ⑤⑦⑧	tq	80 to 100
Typ. delay time, I_{TM} = 1000A T_D = .8 V_{DRM} ④, μsec ④	td	2.0
Typ. turn-on-time I_{TM} = 1000A, μsec	t on	3.0
Min. critical dv/dt exponential to .8 V_{DRM}, T_J = 125°C, V/μsec ②⑤	dv/dt	300
Min. di/dt, non-repetitive, A/μsec ①④⑥	di/dt	800

Gate

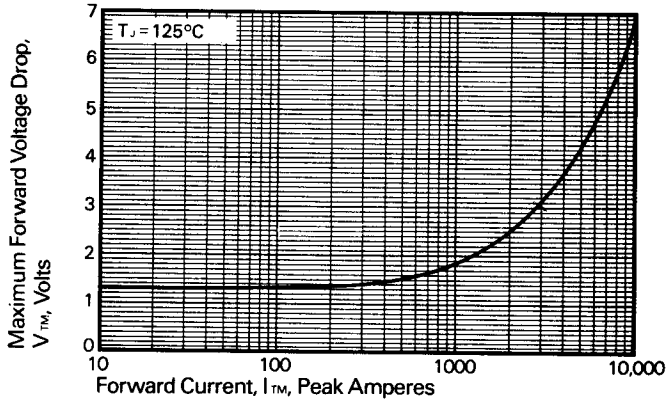
Maximum Parameters (T_J = 25°C)	Symbol	
Gate current to trigger at V_D = 12V, mA	I_{GT}	150
Gate voltage to trigger at V_D = 12V, V	V_{GT}	3
Non-triggering gate voltage, T_J = 125°C, and rated V_{DRM}, V	V_{GDM}	.25
Peak forward gate current, A	I_{GTM}	4
Peak reverse gate voltage, V	V_{GRM}	5
Peak gate power, Watts	P_{GM}	16
Average gate power, Watts	$P_{G(av)}$	3

Thermal and Mechanical

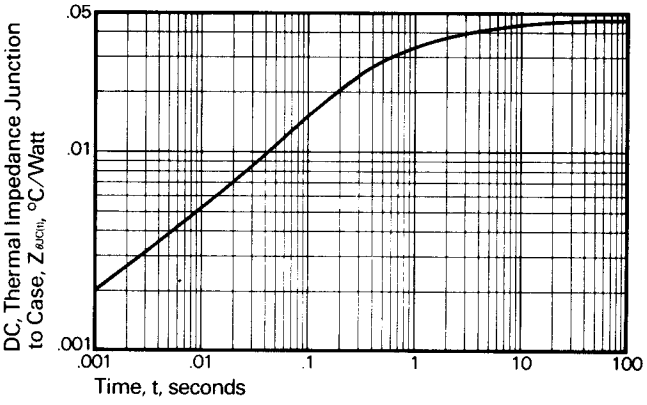
	Symbol	
Min., Max. oper. junction temp., °C	T_J	-40 to +125
Min., Max. storage temp., °C	T_{stg}	-40 to +150
Max. mounting force, lb.... ①		2000 to 2400
Thermal resistance ①, double-side cooling, junction to case, °C/Watt	$R_{\theta JC}$	.045
Case to sink, lubricated, °C/Watt	$R_{\theta CS}$	.02

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.
⑧ Other tq and ut combinations available consult factory.

Maximum Forward Voltage vs. Forward Current



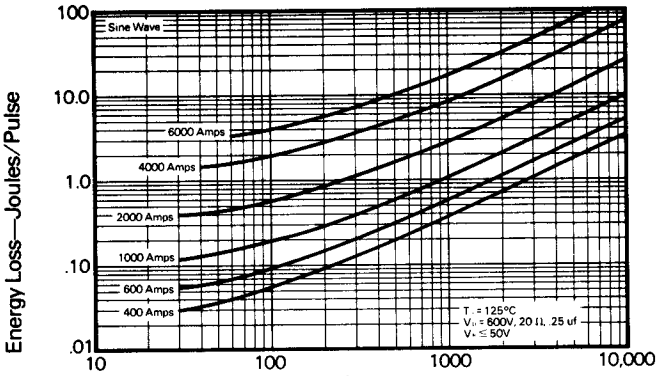
Transient Thermal Impedance vs. Time



Fast Switching SCR T7SH__46

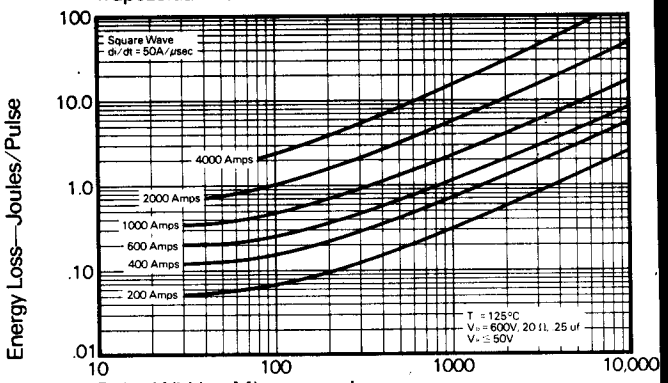
460A Avg.
(720A RMS)
1400-1800 Volts
80-100 μsec

Sinusoidal Current Data

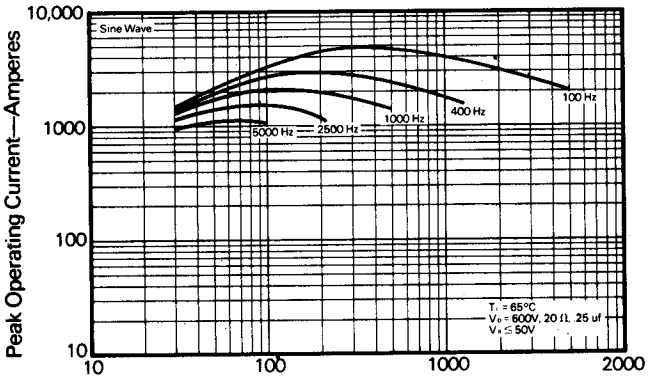


Energy Per Pulse for Sinusoidal Pulses

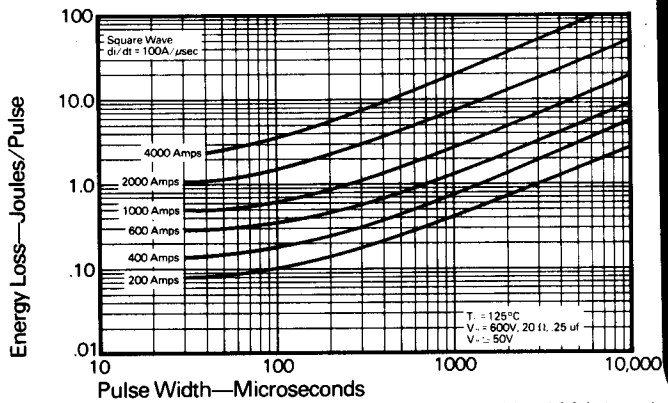
Trapezoidal Wave Current Data



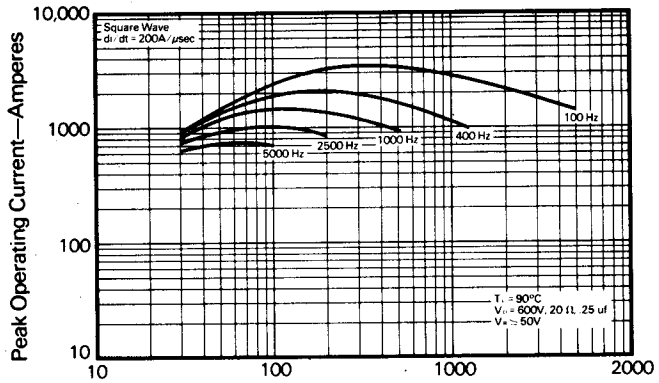
Energy Per Pulse for Trapezoidal Pulses (di/dt = 50A/μsec)



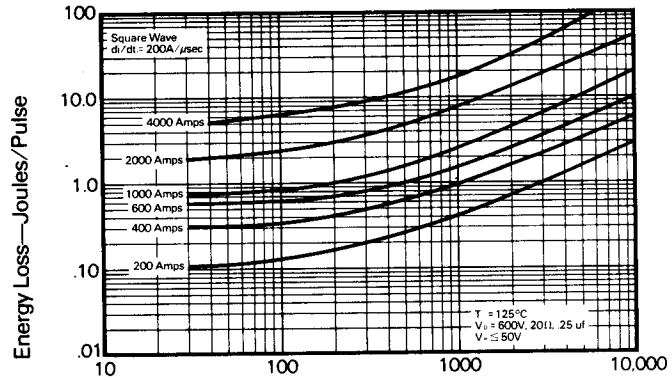
Maximum Allowable Peak On-State Current
vs. Pulse Width (T_C = 65°C)



Energy Per Pulse for Trapezoidal Pulses (di/dt = 100A/μsec)



Maximum Allowable Peak On-State Current
vs. Pulse Width (T_C = 90°C)



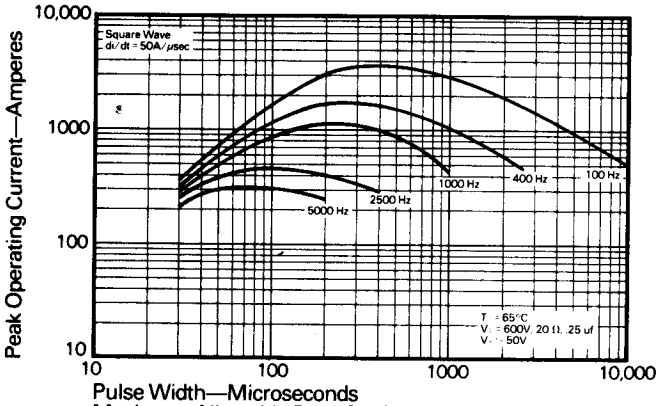
Energy Per Pulse for Trapezoidal Pulses (di/dt = 200A/μsec)

FAST SWITCHING THYRISTORS

460A Avg. (720A RMS) 1400-1800 Volts 80-100 μsec

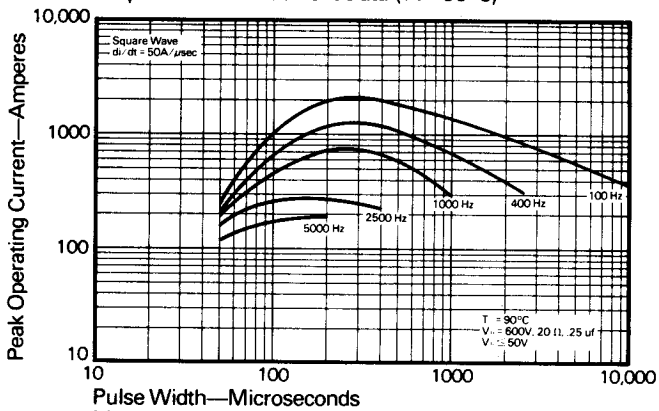
Fast Switching SCR T7SH__46

Trapezoidal Wave Current Data (T_C = 65°C)

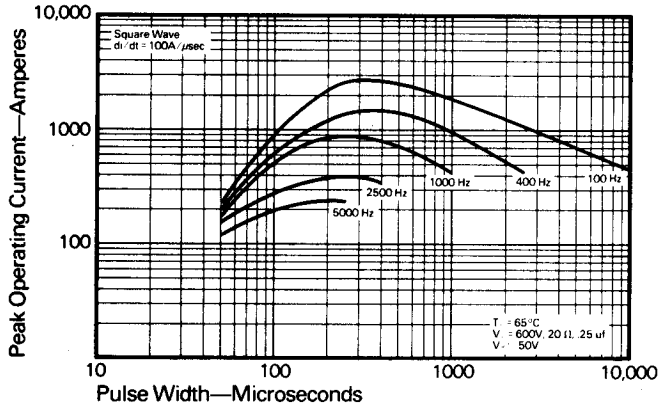


Maximum Allowable Peak On-State Current
vs. Pulse Width (di/dt = 50A/μsec)

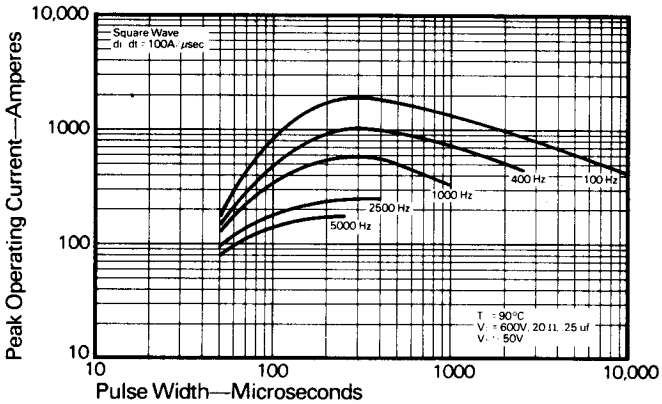
Trapezoidal Wave Current Data (T_C = 90°C)



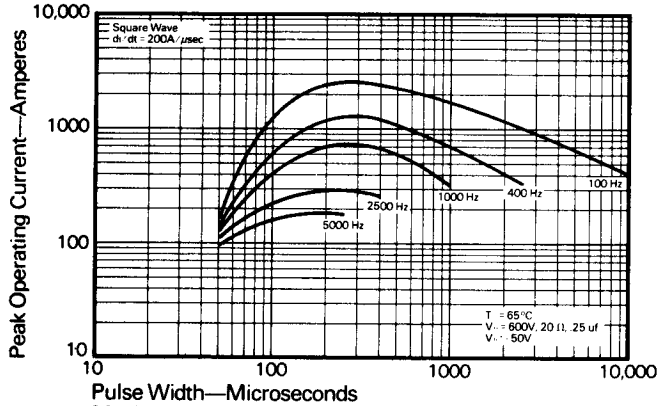
Maximum Allowable Peak On-State Current
vs. Pulse Width (di/dt = 50A/μsec)



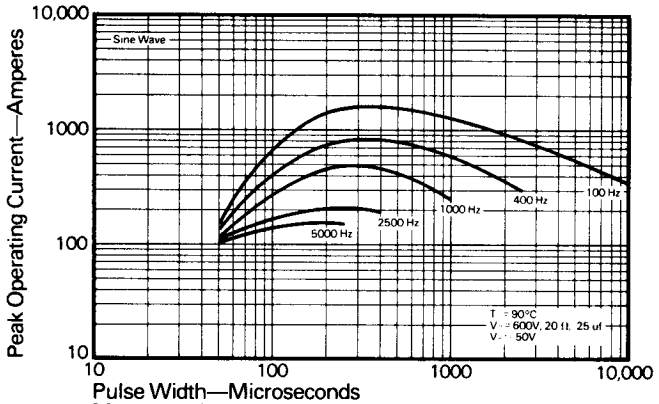
Maximum Allowable Peak On-State Current
vs. Pulse Width (di/dt = 100A/μsec)



Maximum Allowable Peak On-State Current
vs. Pulse Width (di/dt = 100A/μsec)



Maximum Allowable Peak On-State Current
vs. Pulse Width (di/dt = 200A/μsec)



Maximum Allowable Peak On-State Current
vs. Pulse Width (di/dt = 200A/μsec)