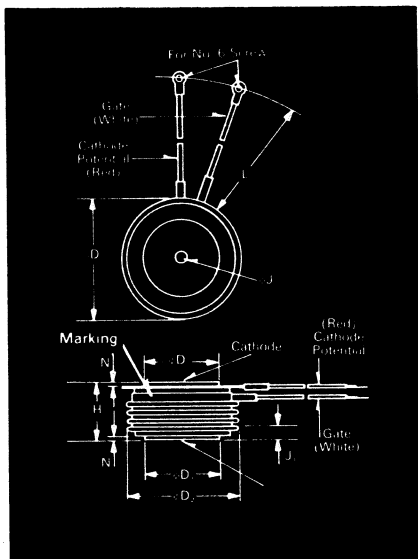


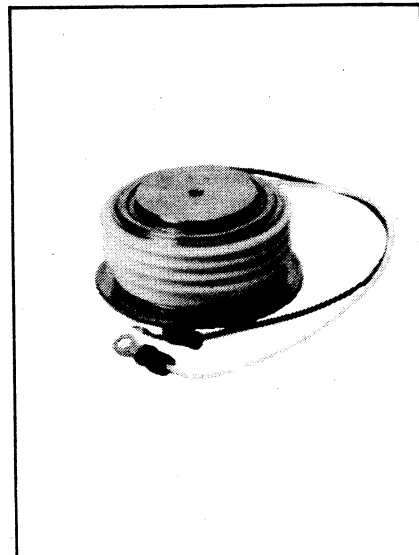
Fast Switching SCR T72H_48

475A Avg.
(750 RMS)
Up to 800 Volts
20-40 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).
1. Dimension "H" is a clamped dimension.



T72 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	VDRM and VRRM (V)	Code	IT(av) (A)	Code	tq usec	Code	IGT (ma)	Code	Case	Code
T72H	100	01	475	48	20	6	150	4	T72	DN
	200	02			25	8				
	300	03			30	5				
	400	04			40	4				
	500	05								
	600	06								
	700	07								
	800	08								

Example

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

Type T72H rated at 475 A average with VDRM = 400V
IGT = 150 ma, tq = 30 μ sec max. and leads—order as:

Type	Voltage	Current	Turn Off	Gate Current	Leads
T 7 2 H	0 4	4 8	5	4	D N

**475A Avg.
(750 RMS)
Up to 800 Volts
20-40 μ s**

**Fast Switching
SCR
T72H_48**

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}

I_{DRM}

I_{RRM}

100	200	300	400	500	600	700	800
100	200	300	400	500	600	700	800
200	300	400	500	600	700	800	900
←				35	→		
←				35	→		

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

Current

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

Symbol

T72H_48

RMS forward current, A ...
Ave. forward current, A ...
One-half cycle surge current②, A ...
 I_{2t} for fusing (for times ≥ 8.3 ms)
A² sec. ...
Forward voltage drop at $I_{TM} = 1500\text{A}$
and $T_J = 25^\circ\text{C}$, V ...
Min. repetitive di/dt ③④⑤ A/ μ sec ...

$I_{T(rms)}$

$I_{T(av)}$

I_{TSM}

I_{2t}

V_{TM}

di/dt

750
475
8000
265,000
1.55
600

Switching

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

Symbol

Max. turn-off time, $I_T = 400\text{A}$, $T_J = 125^\circ\text{C}$
 $t_p = 100$ μ sec, $dirR/dt = 25$
A/ μ sec., reappplied $dv/dt =$
200V/ μ sec. linear to 0.8 V_{DRM} , μ sec. ①① t_q
Typ. delay time, $I_{TM} = 1000\text{A}$ t_d
 $T_D = .8 V_{DRM}$, μ sec
Typ turn-on-time $I_{TM} = 1000\text{A}$, μ sec t_{on}
Min. critical dv/dt exponential to .8
 V_{DRM} , $T_J = 125^\circ\text{C}$, V/ μ sec ⑦⑧ 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 $V_D = 12\text{V}$, mA I_{GT}
Gate voltage to trigger at $V_D = 12\text{V}$, 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

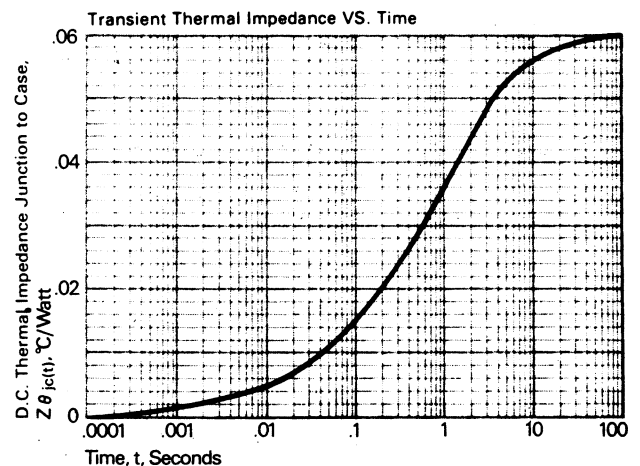
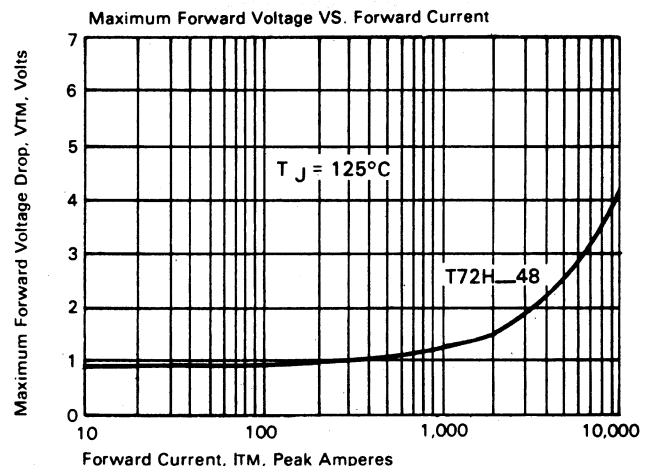
Thermal and Mechanical

Symbol

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

-40 to +125
-40 to +150
2000 to 2400
.06
.02

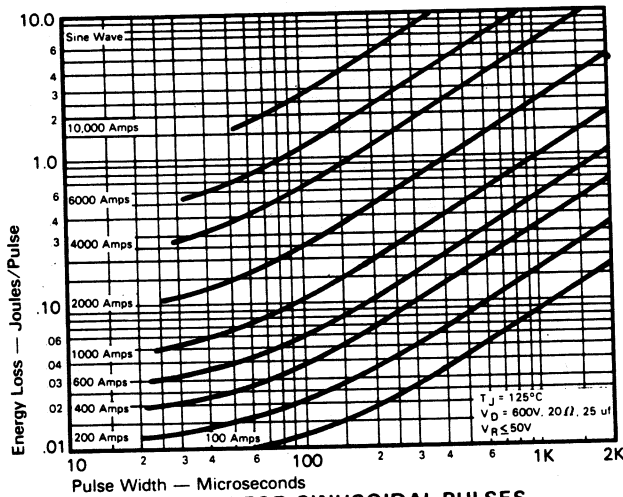
- ① Consult recommended mounting procedures.
- ② Applies for zero or negative gate bias.
- ③ Per JEDEC RS-397, 5.2.2.1.
- ④ With recommended gate drive.
- ⑤ Higher dv/dt ratings available, consult factory.
- ⑥ Per JEDEC standard RS-397, 5.2.2.6.
- ⑦ For operation with antiparallel diode, consult factory.



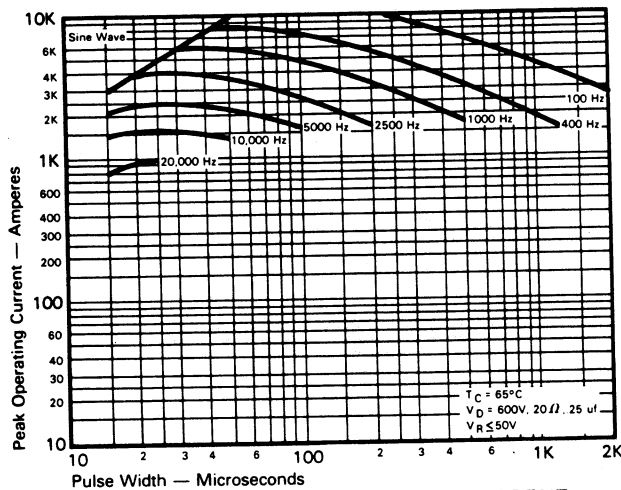
Fast Switching SCR T72H_48

475A Avg.
(750 RMS)
Up to 800 Volts
20-40 μ s

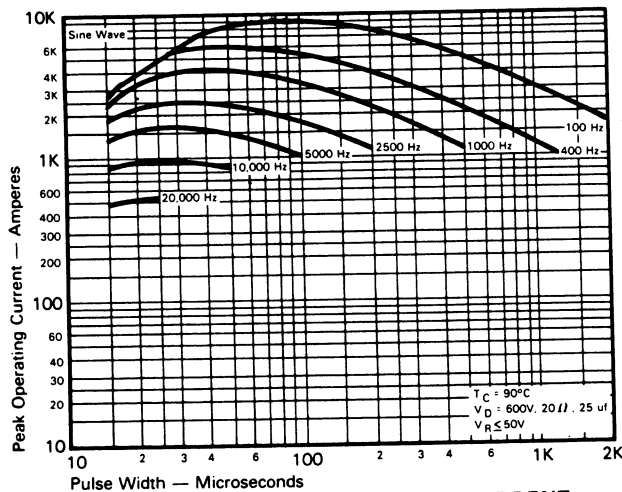
Sinusoidal Current Data



ENERGY PER PULSE FOR SINUSOIDAL PULSES

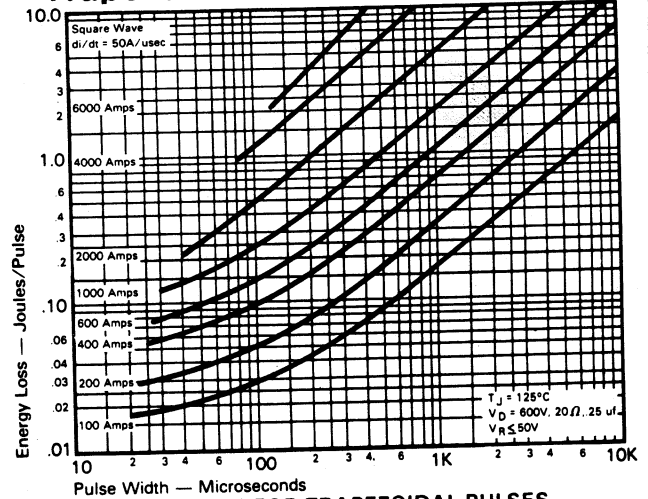


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($T_C = 65^\circ\text{C}$)

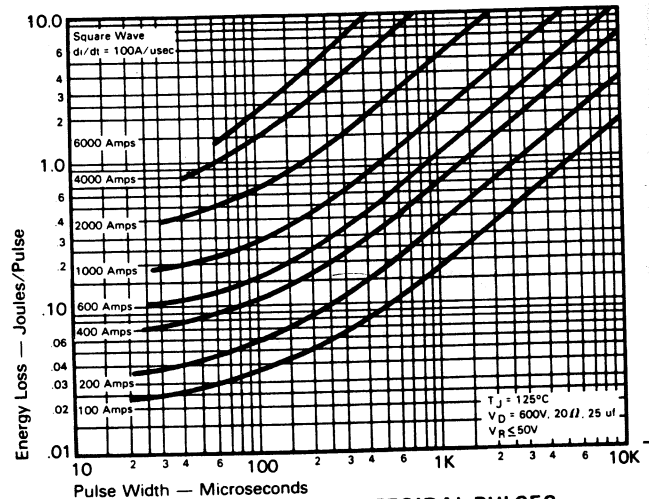


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($T_C = 90^\circ\text{C}$)

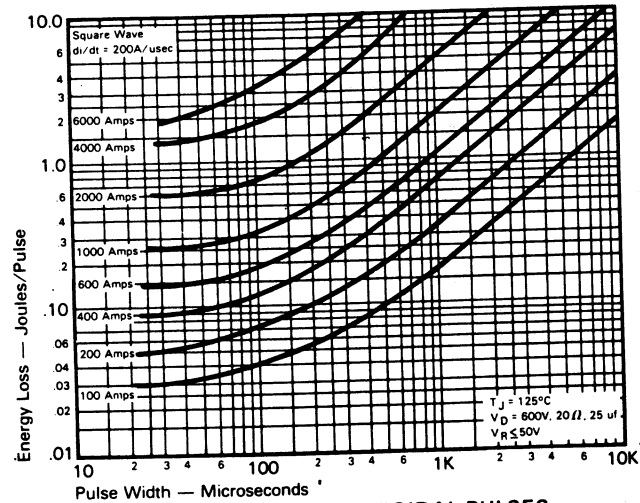
Trapezoidal Wave Current Data



ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
($di/dt = 50\text{A/usec}$)



ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
($di/dt = 100\text{A/usec}$)

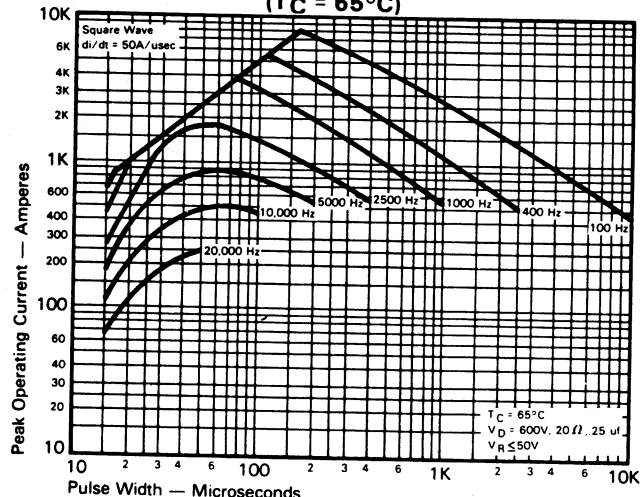


ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
($di/dt = 200\text{A/usec}$)

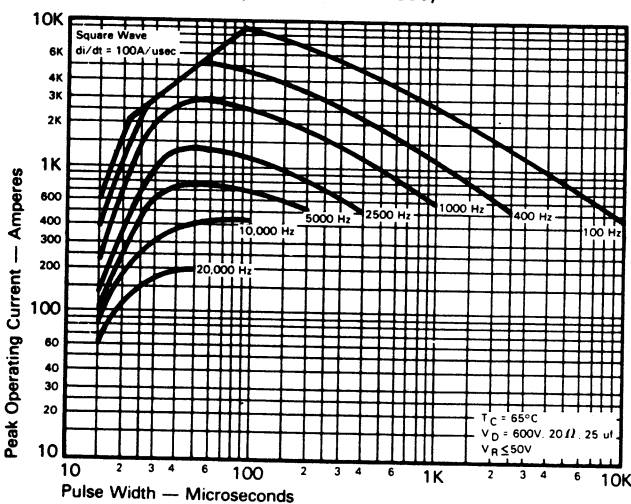
475A Avg.
(750 RMS)
Up to 800 Volts
20-40 μ s

Fast Switching
SCR
T72H_48

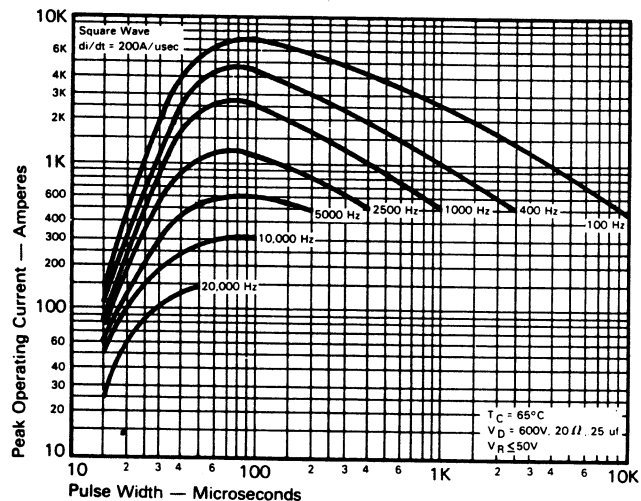
Trapezoidal Wave Current Data ($T_C = 65^\circ\text{C}$)



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

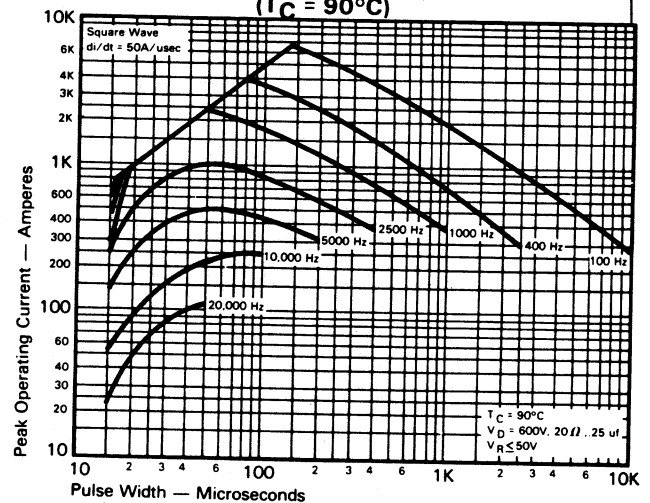


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 100\text{A/usec}$)

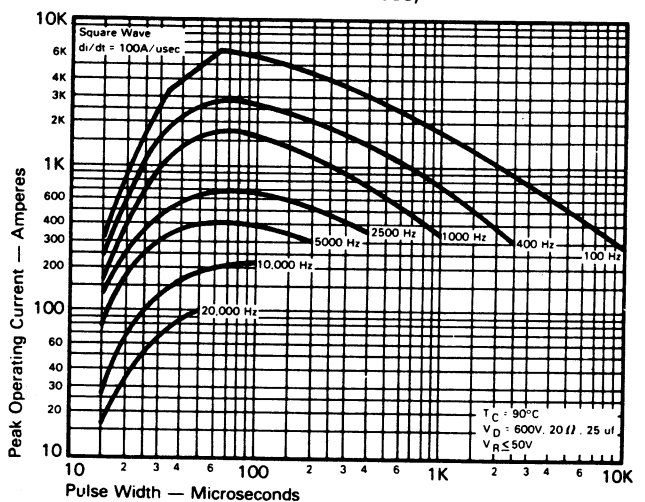


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 200\text{A/usec}$)

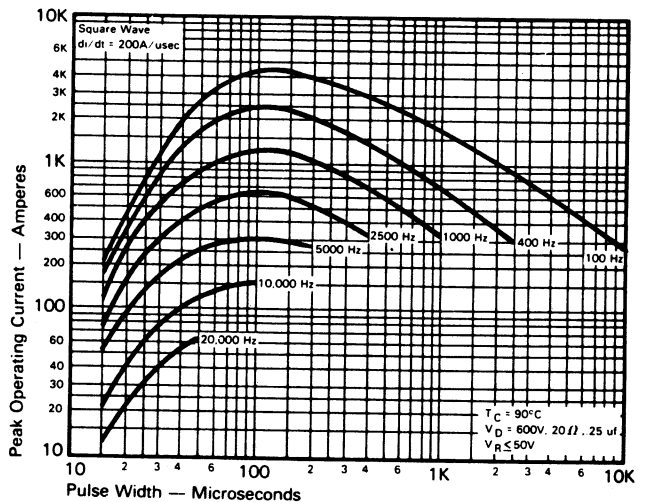
Trapezoidal Wave Current Data ($T_C = 90^\circ\text{C}$)



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 ($di/dt = 200\text{A/usec}$)