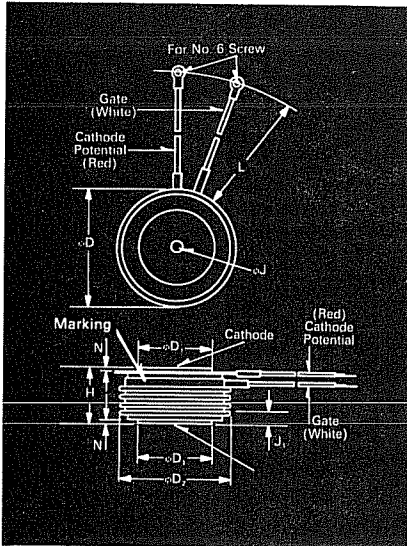




Fast Switching SCR T72H_35

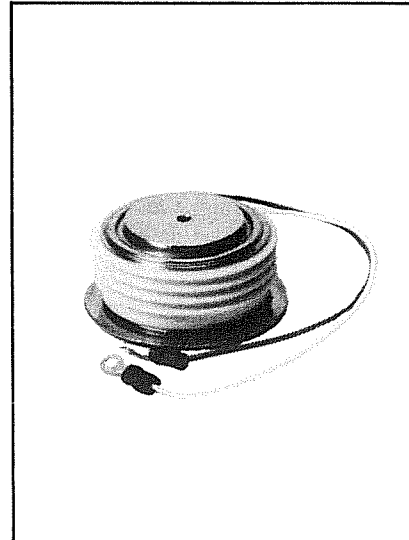
**350A Avg.
(550 RMS)
Up to 1200 Volts
10-50 μ s**



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 1200 Volts
- Low Switching Losses at High Frequency
- Soft Commutation (Feedback Diode) Testing Available
- High di/dt with softgate 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)	t _q usec	Code	I _{GT} (ma)	Code	Case	Code
T72H		100	01	350	10	8	150	4	T72	DN
		200	02							
		300	03							
		400	04							
		500	05							
		600	06							
		700	07							
		800	08							
		900	09							
		1000	10							
		1100	11							
		1200	12							

Example

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

Type T72H rated at 350 A average with V_{DRM} = 1000V, I_{GT} = 150 ma, t_q = 30 μ sec max. and leads—order as:

Type	Voltage	Current	Turn Off	Gate Current	Leads
T 7 2 H	1 0 3	5 5	5	4	D N

**350A Avg.
(550 RMS)
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**Fast Switching
SCR
T72H_35**



Voltage ②

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

Symbol	100	200	300	400	500	600	700	800	900	1000	1100	1200
Repetitive peak forward blocking voltage, V ... V_{DRM}	100	200	300	400	500	600	700	800	900	1000	1100	1200
Repetitive peak reverse voltage, V ... V_{RRM}	100	200	300	400	500	600	700	800	900	1000	1100	1200
Non-repetitive transient peak reverse voltage, $t \leq 5.0$ msec, V ... V_{RSM}	200	300	400	500	600	700	800	900	1000	1100	1200	1300
Forward leakage current, mA peak ... I_{DRM}	← 35 →											
Reverse leakage current, mA peak ... I_{RRM}	← 35 →											

Current

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

Symbol	T72H_35
RMS forward current, A ... $I_{T(rms)}$	550
Ave. forward current, A ... $I_{T(av)}$	350
One-half cycle surge current③, A ... I_{TSM}	7000
3 cycle surge current④, A ... I_{TSM}	5040
10 cycle surge current⑤, A ... I_{TSM}	4340
I^2t for fusing (for times ≥ 8.3 ms) $A^2 \text{ sec.}$... I^2t	205,000
Forward voltage drop at $I_{TM} = 1500A$ and $T_J = 25^\circ\text{C}$, V ... V_{TM}	3.15
Min. repetitive di/dt ①④⑥ A/ μ sec ... di/dt	500

Switching

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

Symbol	Value
Max. turn-off time, $I_T = 1000A$, $T_J = 125^\circ\text{C}$ $t_p = 100 \mu\text{sec}$, $dirR/dt = 50$ A/ μ sec., reappplied $dv/dt = 200$ V/ μ sec. linear to 0.8 V_{DRM} , $\mu\text{sec.}$ ③① t_q	10 to 50
Typ. delay time, $I_{TM} = 1000A$ $T_D = .8 V_{DRM}$ ④, μsec t_d	.5
Min. critical dv/dt exponential to .8 V_{DRM} , $T_J = 125^\circ\text{C}$, V/ μ sec ②⑤ dv/dt	300
Min. di/dt , non-repetitive, A/ μ sec ①④⑥ di/dt	1200

Gate

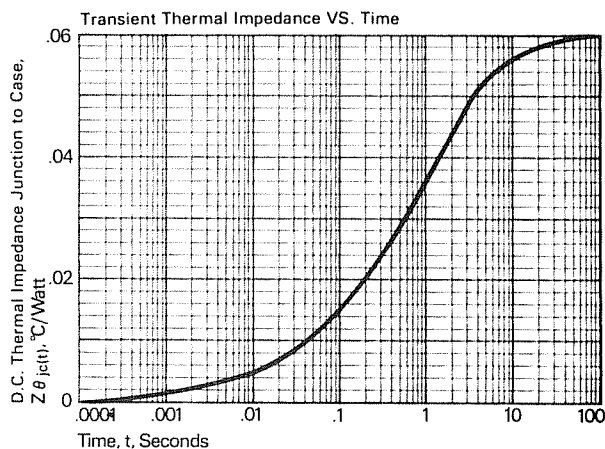
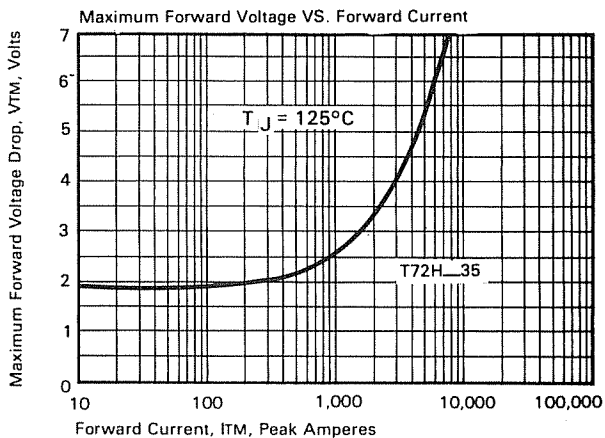
Maximum Parameters ($T_J = 25^\circ\text{C}$)

Symbol	Value
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, $T_J = 125^\circ\text{C}$, 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	Value
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	2000 to 2400
Thermal resistance ⑦, double-side cooling, junction to case, $^\circ\text{C}/\text{Watt}$... $R_{\theta JC}$.06
Case to sink, lubricated, $^\circ\text{C}/\text{Watt}$... $R_{\theta CS}$.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.



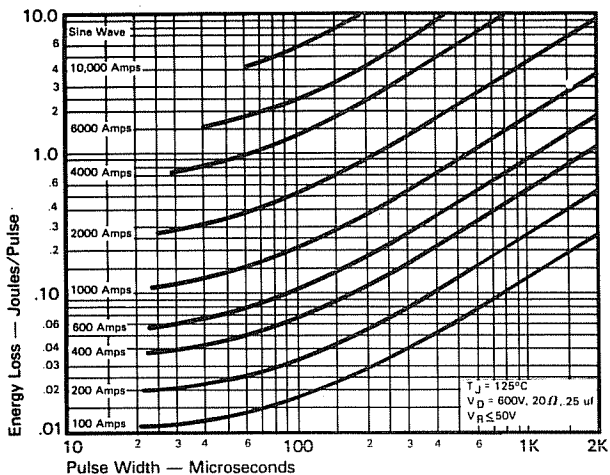
FAST SWITCHING THYRISTORS



Fast Switching SCR T72H_35

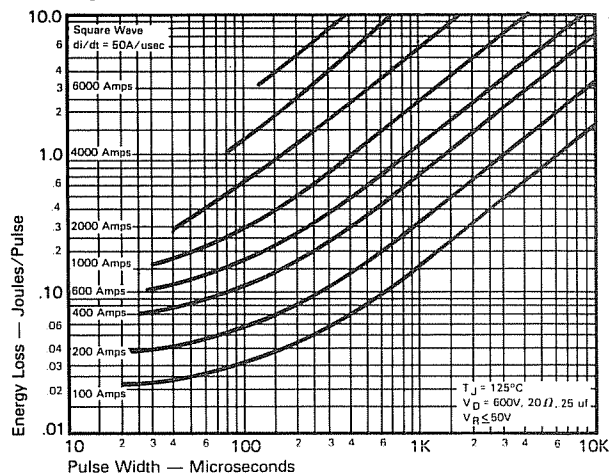
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Sinusoidal Current Data

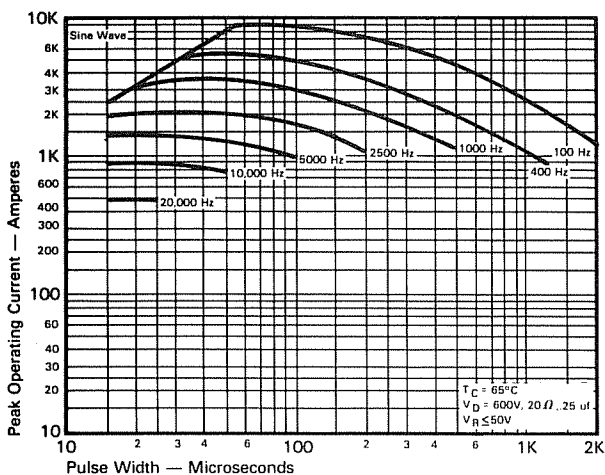


ENERGY PER PULSE FOR SINUSOIDAL PULSES

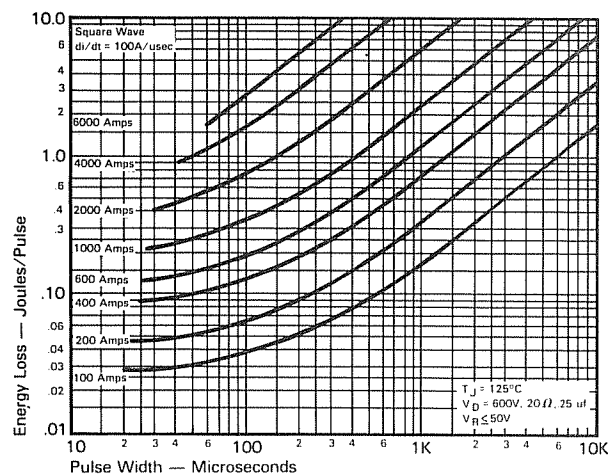
Trapezoidal Wave Current Data



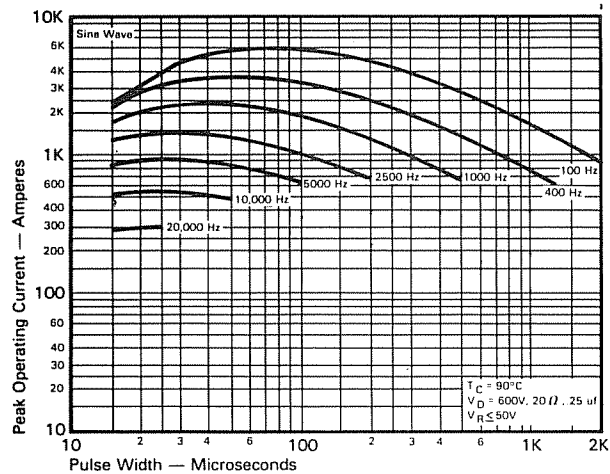
ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
(di/dt = 50A/usec)



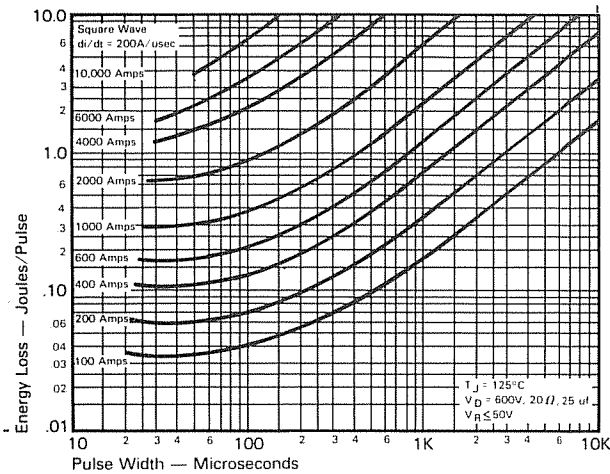
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($T_C = 65^\circ C$)



ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
(di/dt = 100A/usec)



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



ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
(di/dt = 200A/usec)

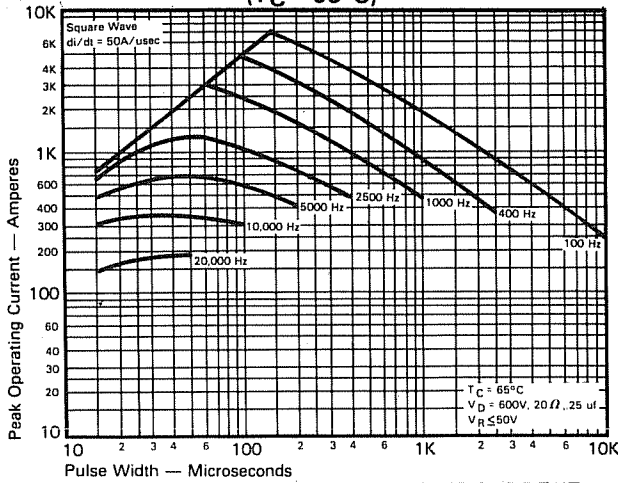
FAST SWITCHING
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Fast Switching
SCR
T72H_35

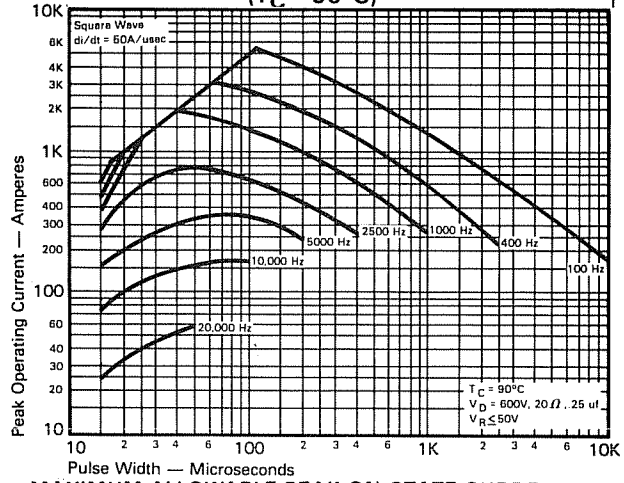


Trapezoidal Wave Current Data
($T_C = 65^\circ\text{C}$)

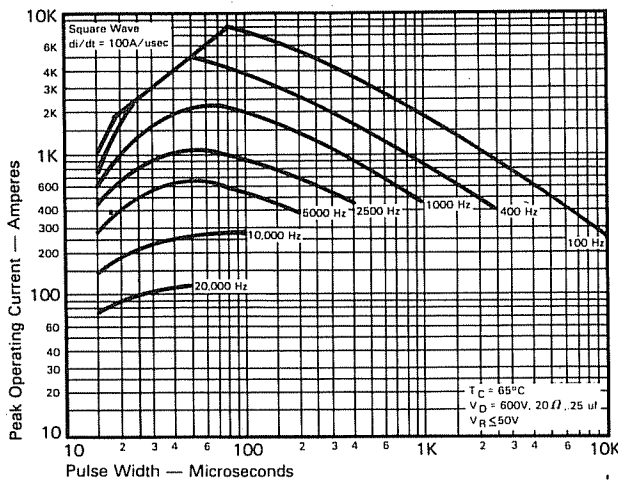


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ($di/dt = 50A/usec$)

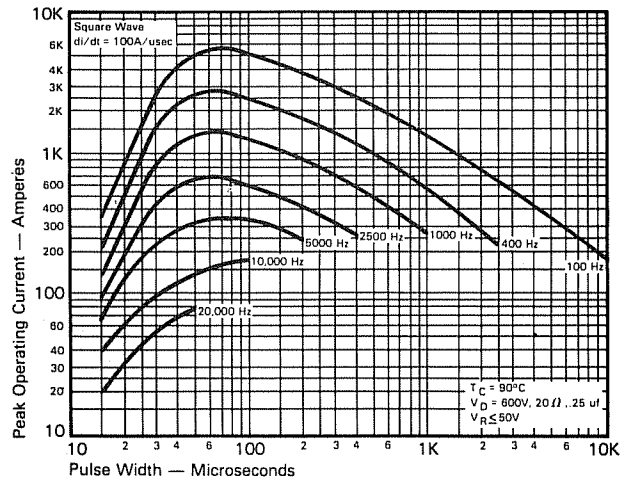
Trapezoidal Wave Current Data
($T_C = 90^\circ\text{C}$)



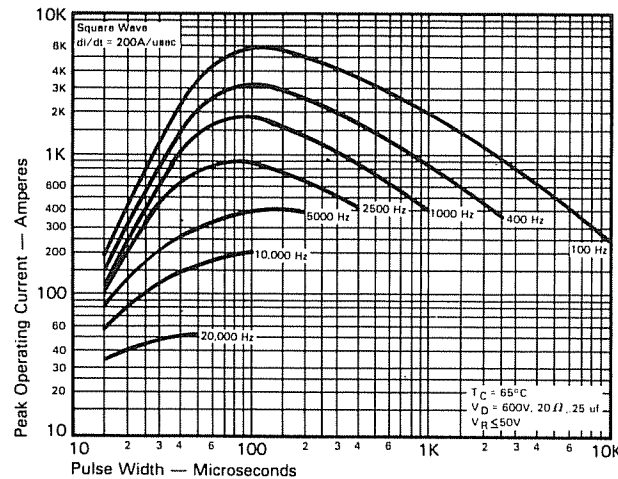
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ($di/dt = 50A/usec$)



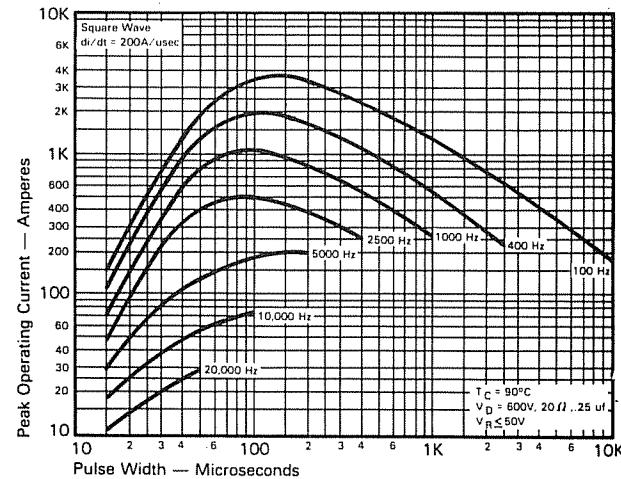
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ($di/dt = 100A/usec$)



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

FAST SWITCHING THYRISTORS