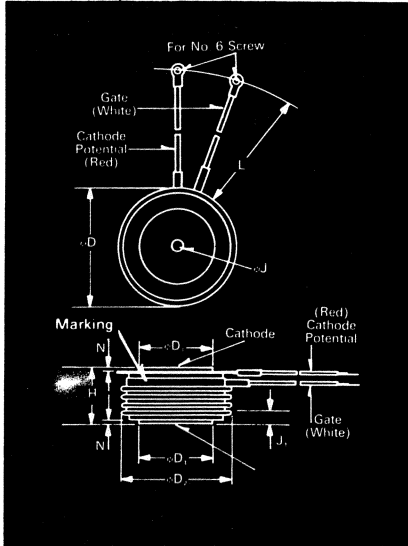


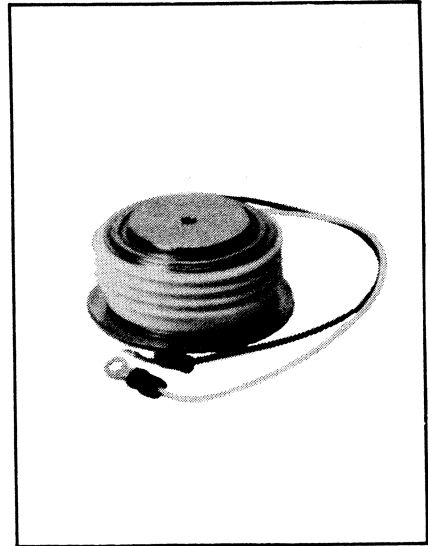
# Fast Switching SCR T72H\_35

350A Avg.  
(550 RMS)  
Up to 1200 Volts  
10-50  $\mu$ s



Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
$\phi D$	2.250	2.290	57.15	58.17
$\phi D_1$	1.333	1.343	33.86	34.11
$\phi D_2$	2.030	2.090	51.56	53.09
H	1.020	1.060	25.91	26.92
$\phi J$	.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	
	VDRM and VRRM (V)	Code	IT(av) (A)	Code	tq usec	Code	IGT (ma)	Code	Case	Code
T72H	100	01	350	35	10	5	150	4	T72	DN
	200	02			15	7				
	300	03			20	6				
	400	04			25	8				
	500	05			30	5				
	600	06			40	4				
	700	07			50	3				
	800	08			100	K				
	900	09								
	1000	10								
	1100	11								
	1200	12								
	1000	10								

## Example

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

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

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

**350A Avg.  
(550 RMS)  
Up to 1200 Volts  
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**Fast Switching  
SCR  
T72H\_35**

**Voltage** ①

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

Symbol	Value
Repetitive peak forward blocking voltage, V ... $V_{DRM}$	100 to 1200
Repetitive peak reverse voltage, V ... $V_{RRM}$	100 to 1200
Non-repetitive transient peak reverse voltage, $t \leq 5.0$ msec, V ... $V_{RSM}$	200 to 1300
Forward leakage current, mA peak ... $I_{DRM}$	35
Reverse leakage current, mA peak ... $I_{RRM}$	35

Symbol	100	200	300	400	500	600	700	800	900	1000	1100	1200
$V_{DRM}$	100	200	300	400	500	600	700	800	900	1000	1100	1200
$V_{RRM}$	100	200	300	400	500	600	700	800	900	1000	1100	1200
$V_{RSM}$	200	300	400	500	600	700	800	900	1000	1100	1200	1300
$I_{DRM}$	← 35 →											
$I_{RRM}$	← 35 →											

**Current**

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

Symbol	Value
RMS forward current, A ... $I_{T(rms)}$	550
Ave. forward current, A ... $I_{T(av)}$	350
One-half cycle surge current②, A ... $I_{TSM}$	7000
3 cycle surge current③, A ... $I_{TSM}$	5040
10 cycle surge current④, A ... $I_{TSM}$	4340
$I^2t$ for fusing (for times $\geq 8.3$ 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 $di/dt$ ⑤⑥ A/ $\mu\text{sec}$ ... $di/dt$	500

**T72H\_35**

**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/ $\mu\text{sec}$ , reappplied $dv/dt = 200$ V/ $\mu\text{sec}$ . linear to 0.8 $V_{DRM}$ , $\mu\text{sec}$ . ⑤⑥ $t_q$	10 to 50
Typ. delay time, $I_{TM} = 1000A$ $T_D = .8 V_{DRM}$ ⑦, $\mu\text{sec}$ $t_d$	.5
Min. critical $dv/dt$ exponential to .8 $V_{DRM}$ , $T_J = 125^\circ\text{C}$ , V/ $\mu\text{sec}$ ⑧⑨ $dv/dt$	300
Min. $di/dt$ , non-repetitive, A/ $\mu\text{sec}$ ⑩⑪⑫ $di/dt$	1200

**Gate**

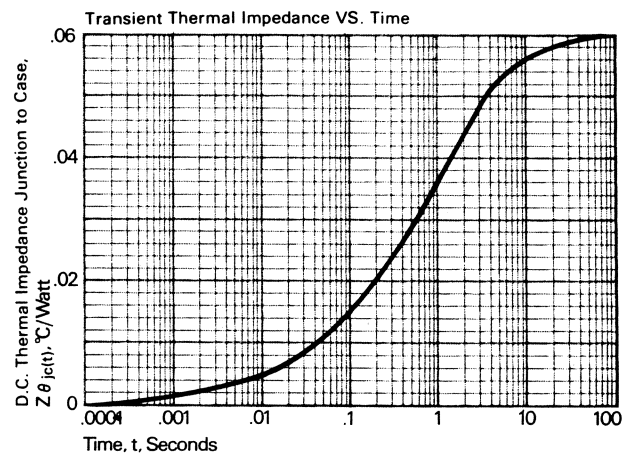
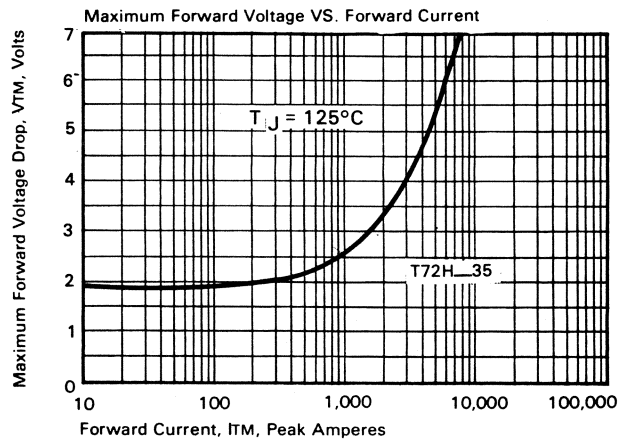
**Maximum Parameters** ( $T_J = 25^\circ\text{C}$ )

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. ... ⑬	2000 to 2400
Thermal resistance⑭, 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.

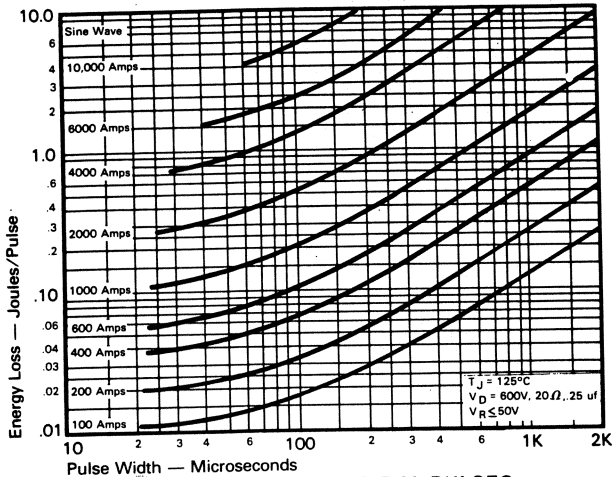


FAST SWITCHING  
THYRISTORS

# Fast Switching SCR T72H\_35

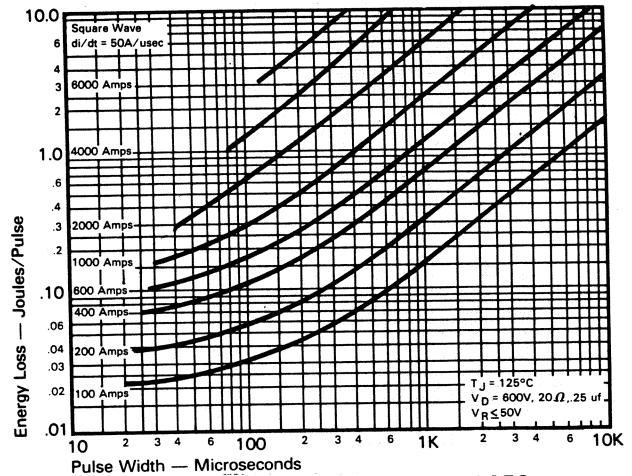
350A Avg.  
(550 RMS)  
Up to 1200 Volts  
10-50  $\mu$ s

## Sinusoidal Current Data

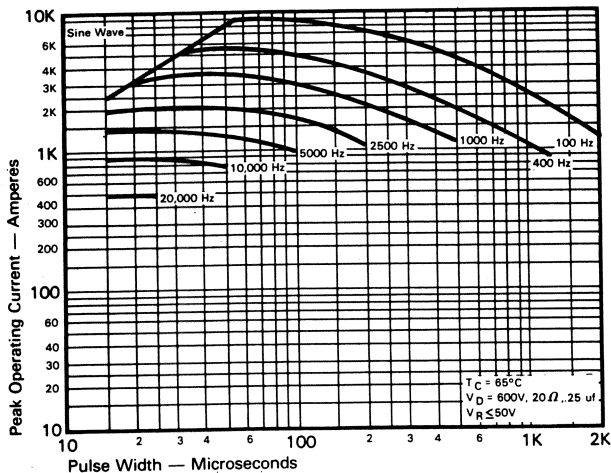


ENERGY PER PULSE FOR SINUSOIDAL PULSES

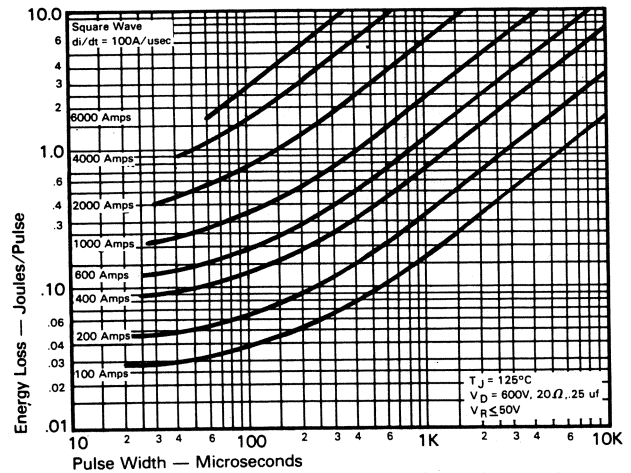
## Trapezoidal Wave Current Data



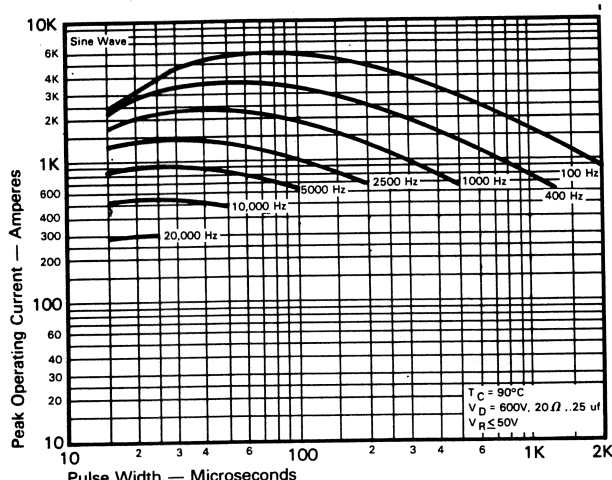
ENERGY PER PULSE FOR TRAPEZOIDAL PULSES  
(di/dt = 50A/usec)



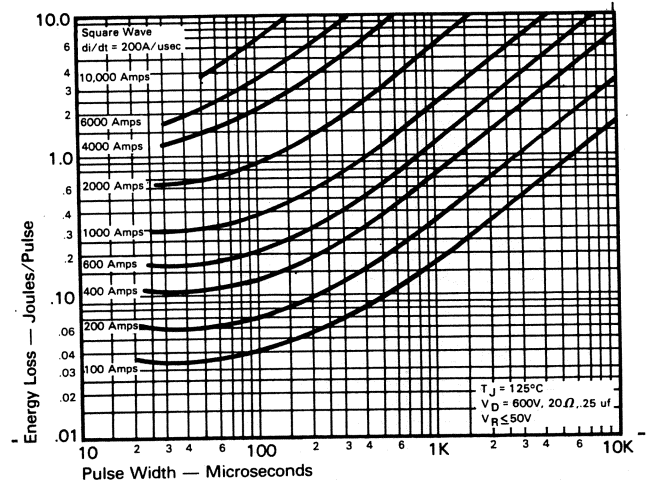
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT  
vs. PULSE WIDTH ( $T_C = 65^\circ\text{C}$ )



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



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

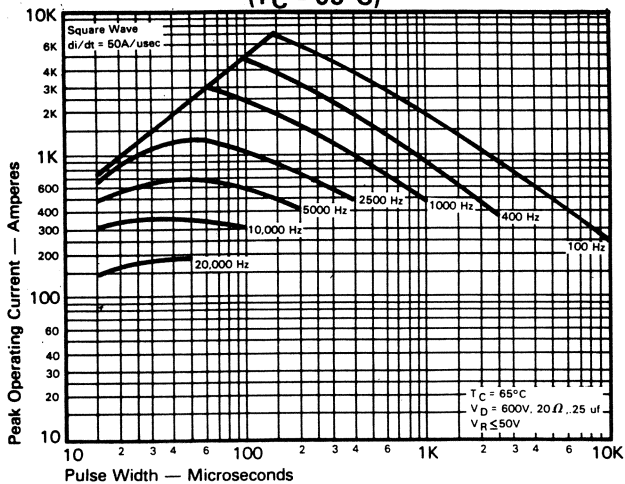


ENERGY PER PULSE FOR TRAPEZOIDAL PULSES  
(di/dt = 200A/usec)

**350A Avg.  
(550 RMS)  
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10-50  $\mu$ s**

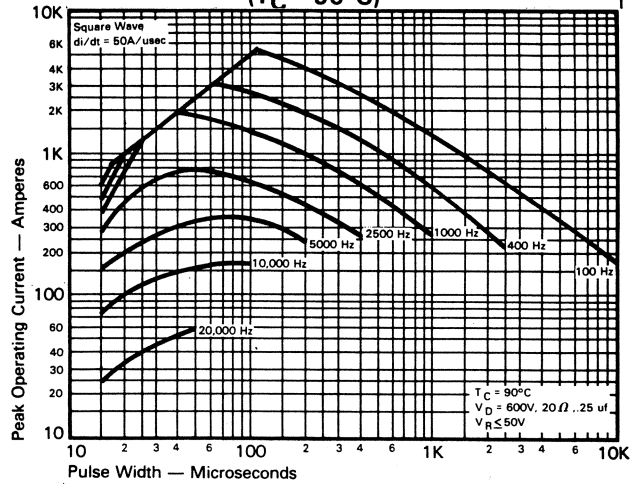
**Fast Switching  
SCR  
T72H\_35**

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

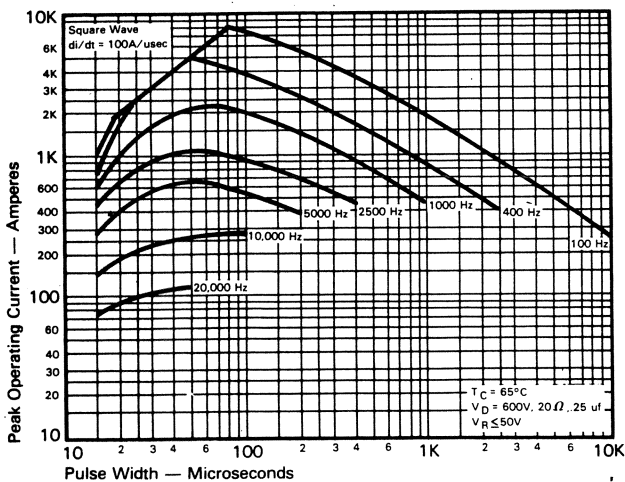


**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ( $di/dt = 50A/usec$ )**

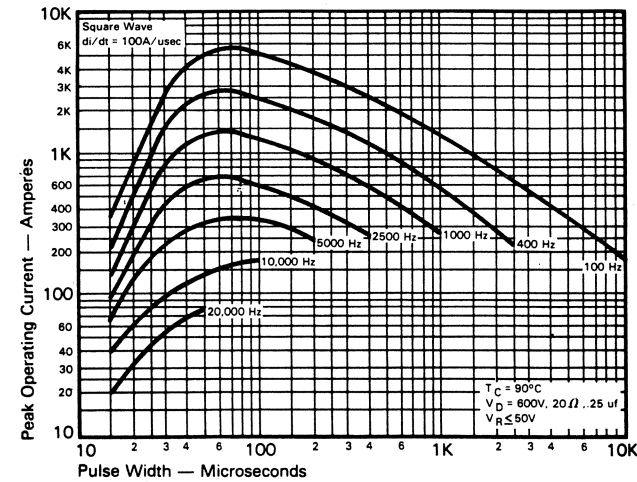
**Trapezoidal Wave Current Data  
( $T_C = 90^\circ\text{C}$ )**



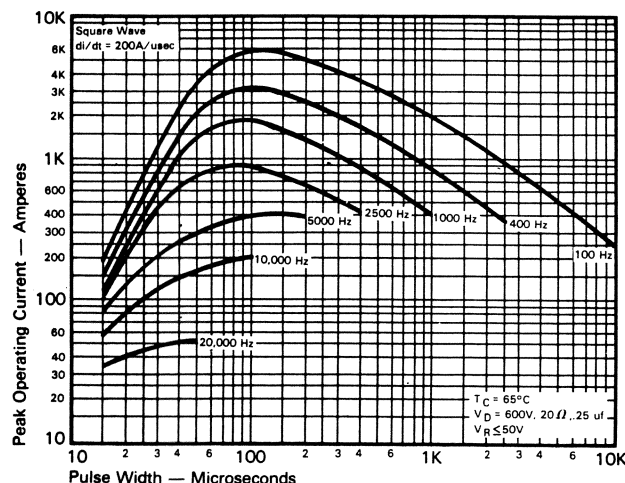
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ( $di/dt = 50A/usec$ )**



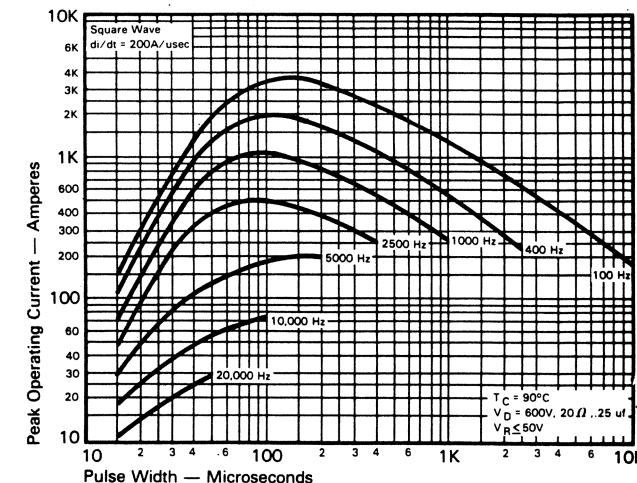
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs. PULSE WIDTH ( $di/dt = 100A/usec$ )**



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



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



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

FAST SWITCHING THYRISTORS