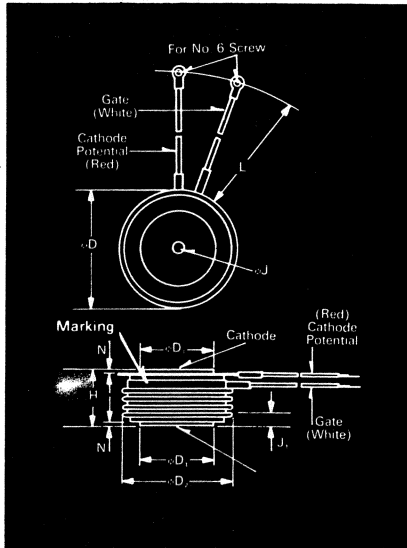


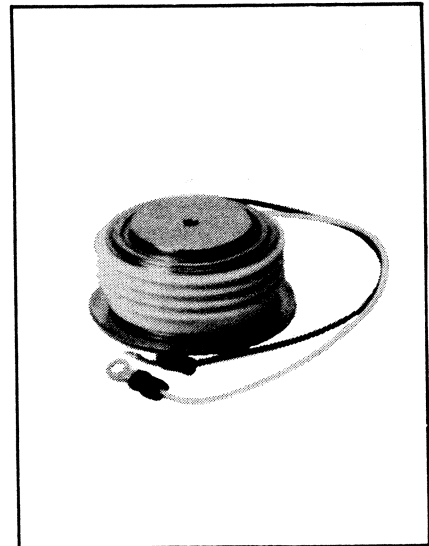
Fast Switching SCR T72H_35

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)	Code	t _q μ sec	Code	I _{GT} (ma)	Code	Case	Code
T72H	100	01	350	35	10	8	150	4	T72	DN
	200	02			15	7				
	300	03			20	6				
	400	04			25	5				
	500	05			30	4				
	600	06			40	3				
	700	07			50	2				
	800	08			100	1				
	900	09								
	1000	10								
	1100	11								
	1200	12								
	1400	14								

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	4	D N

**350A Avg.
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SCR
T72H_35**

Voltage ①

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

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}	

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

Current

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

RMS forward current, A ...	$I_{T(rms)}$	
Ave. forward current, A ...	$I_{T(av)}$	
One-half cycle surge current②, A ...	I_{TSM}	
3 cycle surge current③, A ...	I_{TSM}	
10 cycle surge current③, A ...	I_{TSM}	
I^2t for fusing (for times ≥ 8.3 ms) A ² sec.	I^2t	
Forward voltage drop at $I_{TM} = 1500\text{A}$ and $T_J = 25^\circ\text{C}$, V ...	V_{TM}	
Min. repetitive di/dt ④⑤ A/ μ sec ...	di/dt	

T72H_35

550
350
7000
5040
4340
205,000
3.15
500

Switching

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

Max. turn-off time, $I_T = 1000\text{A}$, $T_J = 125^\circ\text{C}$

$t_p = 100$ μ sec, $dirR/dt = 50$
A/ μ sec., reapplied $dv/dt =$
200 V/ μ sec. linear to 0.8 V_{DRM} , μ sec. ⑥⑦ t_q

Typ. delay time, $I_{TM} = 1000\text{A}$
 $T_D = .8$ V_{DRM} ⑧, μ sec t_d

Min. critical dv/dt exponential to .8
 V_{DRM} , $T_J = 125^\circ\text{C}$, V/ μ sec ⑨⑩ dv/dt

Min. di/dt , non-repetitive, A/ μ sec ⑪⑫⑬ di/dt

Symbol

10 to 50
.5
300
1200

Gate

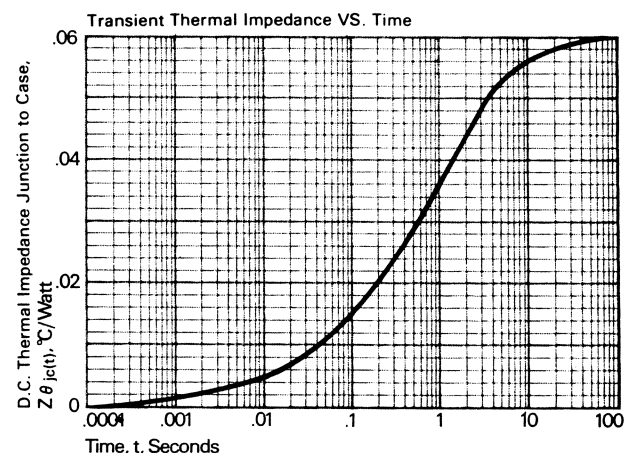
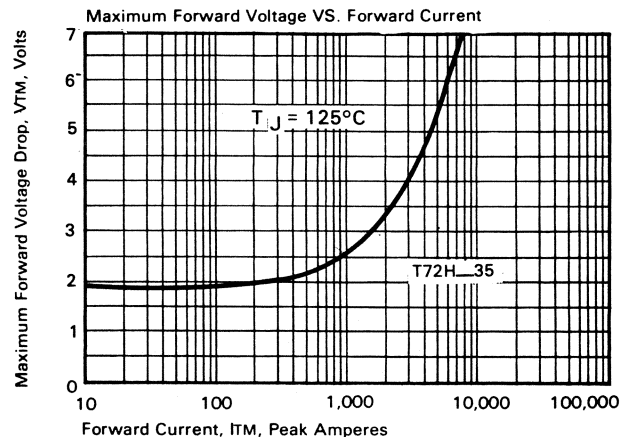
Maximum Parameters
($T_J = 25^\circ\text{C}$)

Gate current to trigger at $V_D = 12\text{V}$, mA	I_{GT}	150
Gate voltage to trigger at $V_D = 12\text{V}$, 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

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. ... ⑭		2000 to 2400
Thermal resistance⑮, 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

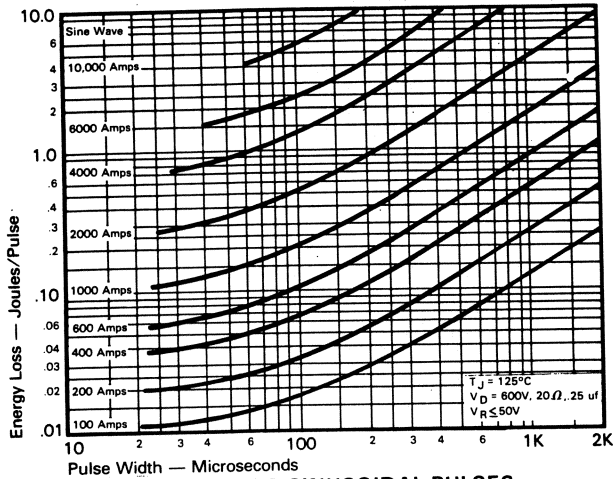
- ① Consult recommended mounting procedures.
- ② Applies for zero or negative gate bias.
- ③ Per JEDEC RS-397, 5.2.2.1.
- ④ With recommended gate drive.
- ⑤ Higher dv/dt ratings available, consult factory.
- ⑥ Per JEDEC standard RS-397, 5.2.2.6.
- ⑦ For operation with antiparallel diode, consult factory.



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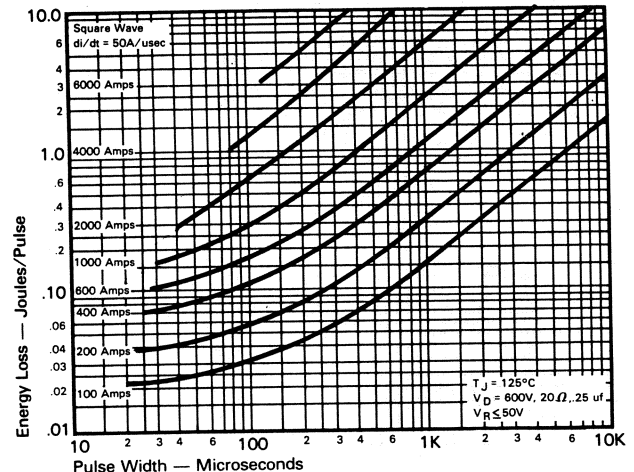
350A Avg.
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Sinusoidal Current Data

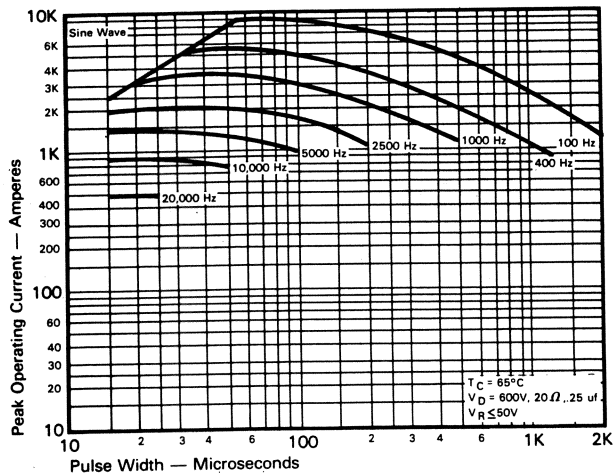


ENERGY PER PULSE FOR SINUSOIDAL PULSES

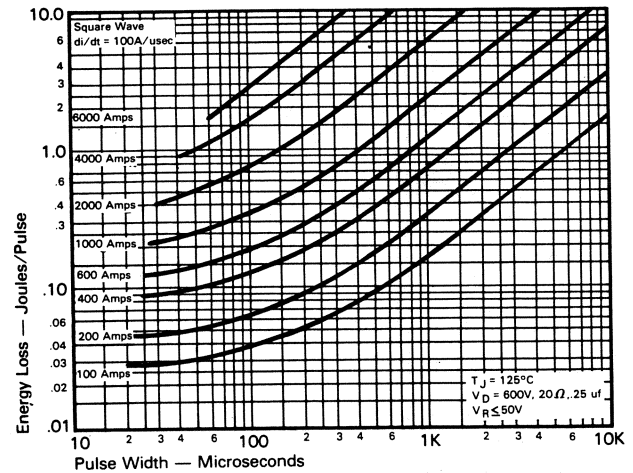
Trapezoidal Wave Current Data



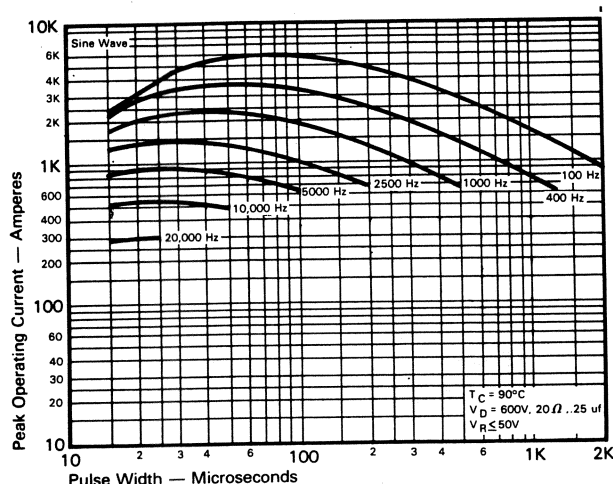
ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
($di/dt = 50\text{A/usec}$)



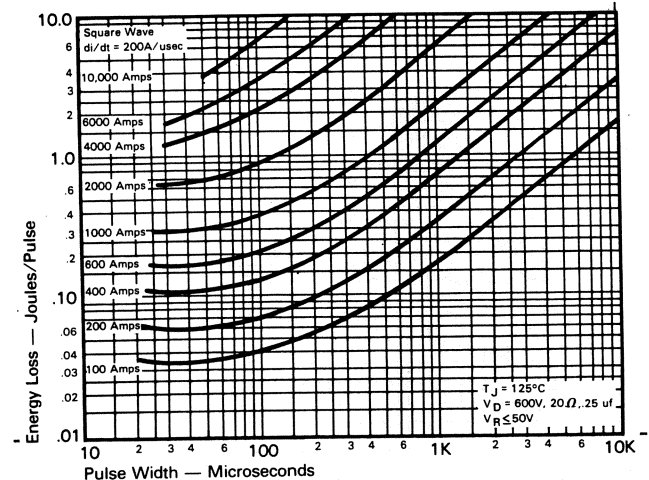
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($T_C = 65^\circ\text{C}$)



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



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

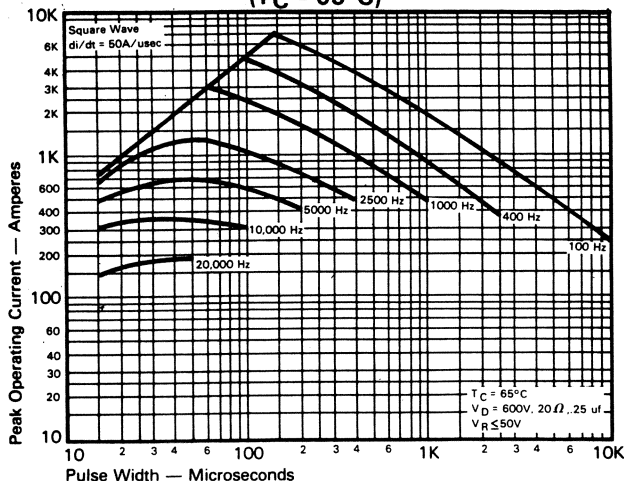


ENERGY PER PULSE FOR TRAPEZOIDAL PULSES
($di/dt = 200\text{A/usec}$)

**350A Avg.
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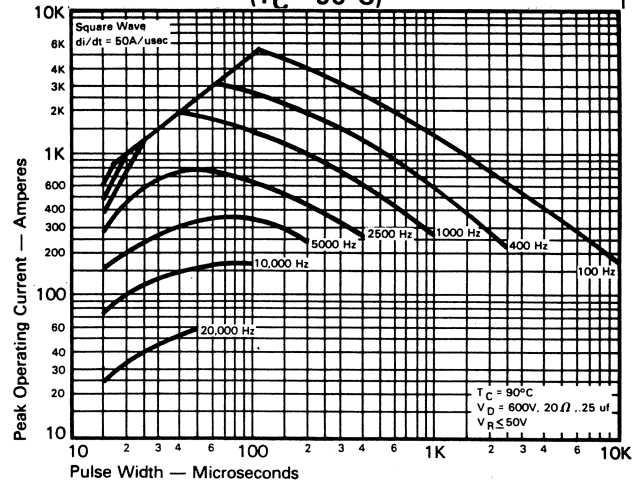
**Fast Switching
SCR
T72H_35**

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

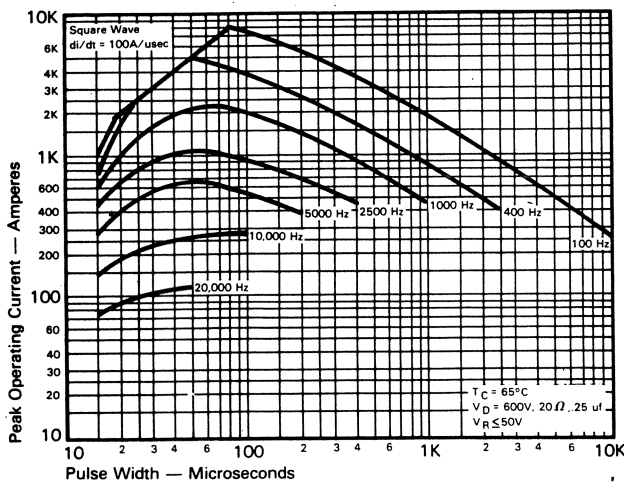


**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 50\text{A/usec}$)**

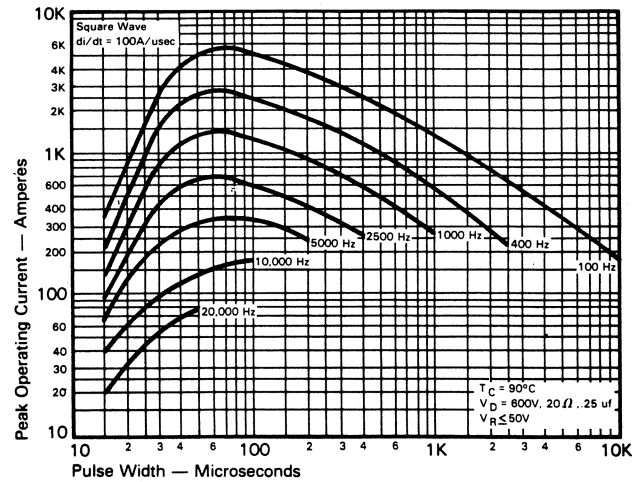
**Trapezoidal Wave Current Data
($T_C = 90^\circ\text{C}$)**



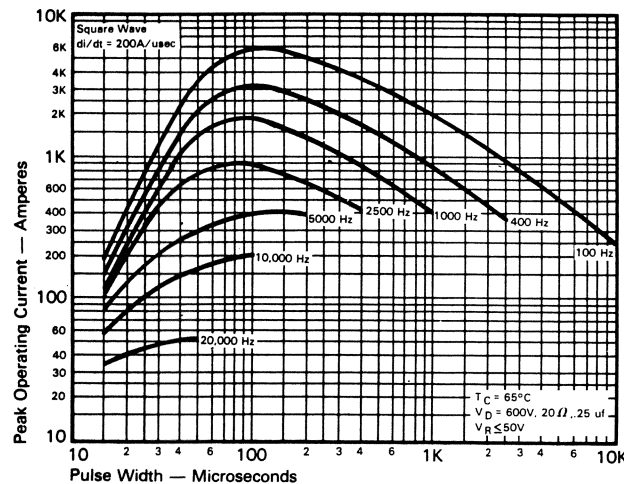
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 50\text{A/usec}$)**



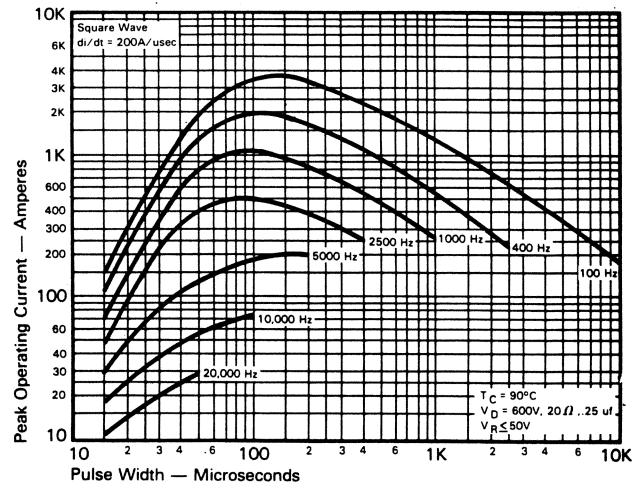
**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT
vs. PULSE WIDTH ($di/dt = 100\text{A/usec}$)**



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



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



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vs. PULSE WIDTH ($di/dt = 200\text{A/usec}$)**