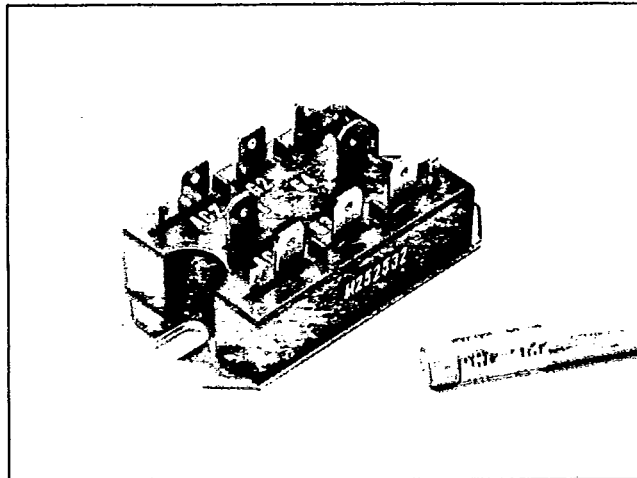




**SILICON  
POWER  
CUBE**

**M25 SERIES  
25A/40A POWER  
SCR/DIODE MODULES**

T-25-17



**FEATURES**

- Eight standard circuit configurations available
- Ultra-High surge current capabilities
- 2500VAC RMS terminal-to-base isolation
- Insulated terminal barrier available, M25E case.
- Utilizes SPC's power hybrid technology for highly efficient thermal management.
- UL Component Recognition
- Available in standard 120VAC, 240 VAC, 320VAC, 440VAC and 480VAC ratings.

PARAMETER	SYM.	UNITS	SPECIFICATION LIMITS		CONDITIONS
DC Output Current (Max.)	$I_o$	A	25	40	$T_c = 85^\circ\text{C}$ (Circuits 1, 2, 3 & 6)
One-Cycle Surge Current (Peak)	$I_{TSM}$	A	300	400	60Hz Sine Wave, Non-Repetitive (Fig. 6)
$I^2t$ for Fusing (Max.)	$I^2t$	$\text{A}^2\text{S}$	370	660	60Hz Sine Wave with Full Reapplied Voltage
Rate-of-Rise of On-State Current (Max.)	$di/dt$	$\text{A}/\mu\text{S}$	100		Max. $V_{DRM}$ , Peak On-State Current = $9 \times I_o$ (Avg.)
Rate-of-Rise of Off-State Voltage (Max.)	$dv/dt$	$\text{V}/\mu\text{S}$	200*		Exponential Rise to 80% $V_{DRM}$ , Gate Open Circuit, $T_c = 125^\circ\text{C}$
Repetitive Peak Off-State and Reverse Blocking Voltage (Max.)	$V_{DRM}$ & $V_{RRM}$	V	300V for 120V <sub>RMS</sub> (-1) 600V for 240V <sub>RMS</sub> (-2) 800V for 320V <sub>RMS</sub> (-3) 1000V for 440V <sub>RMS</sub> (-4) *1200V for 480V <sub>RMS</sub> (-5)		$T_J = 125^\circ\text{C}$
Isolation Voltage (Min.)	$V_{ISOL}$	$V_{rms}$	2500		Any Terminal-to-Base
Junction Operating Temp. Range	$T_J$	$^\circ\text{C}$	-40 to +125		
Storage Temperature Range	$T_{STG}$	$^\circ\text{C}$	-40 to +125		
Thermal Resistance (Case-to-Sink)	$R\theta_{c-s}$	$^\circ\text{C}/\text{W}$	0.1		With Thermal Grease
Thermal Resistance (Junction-to-Case)	$R\theta_{j-c}$	$^\circ\text{C}/\text{W}$	1.15	0.75	Per Device
Forward Gate Current (Peak)	$I_{FGM}$	A	3		See Fig. 7
Forward Gate Voltage (Peak)	$V_{FGM}$	V	10		
Reverse Gate Voltage (Peak)	$V_{RGM}$	V	5		
Gate Power (Peak)	$P_{GM}$	W	5		10 $\mu\text{S}$ Duration
Gate Current Required to Fire all Devices (Max.)	$I_{GT}$	mA	50		$T_c = 25^\circ\text{C}$
Gate Voltage Required to Fire all Devices (Max.)	$V_{GT}$	V	2.5		
Latching Current (Max.)	$I_L$	mA	150		
Holding Current (Max.)	$I_H$	mA	75		
Leakage Current	$I_{DRM}$ & $I_{DM}$	mA	10		$T_J = 125^\circ\text{C}$ at Peak Rated Voltage
Case Style			M25 or M25E		See following page for circuit configurations and outline dimensions

\* Higher values are available. Consult Factory.

**PART NUMBER DESIGNATION CODE**

M25
40
3
2
FV

CASE STYLE  
M25 OR M25E (INSULATED TERMINAL BARRIER)

DC OUTPUT CURRENT  
25 OR 40A (M25 or M25E CASE)

CIRCUIT DESIGNATION

\*VOLTS AC (RMS)  
1-120V 4-440V  
2-240V 5-480V  
3-320V

V - VOLTAGE SUPPRESSOR  
F - FREE WHEELING DIODE  
FV - BOTH

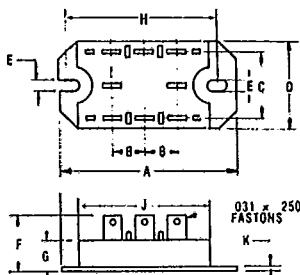
\* Consult Factory for higher voltages

**M25/M25E CIRCUIT CONFIGURATIONS (See page 50 for characteristic curves)**

CIRCUIT TYPE	CIRCUIT DESIGNATION	CIRCUIT SCHEMATICS	CIRCUIT OPTIONS	TERMINAL LOCATIONS
HYBRID BRIDGE COMMON CATHODE SCRS	CIRCUIT 1		VOLTAGE SUPPRESSOR FREE WHEELING DIODE	
HYBRID BRIDGE COMMON ANODE SCRS	CIRCUIT 2		VOLTAGE SUPPRESSOR FREE WHEELING DIODE	
FULL SCR BRIDGE	CIRCUIT 3		VOLTAGE SUPPRESSOR	
AC SWITCH	CIRCUIT 4		VOLTAGE SUPPRESSOR	
SCR DOUBLER	CIRCUIT 5			
HYBRID BRIDGE DOUBLER	CIRCUIT 6		VOLTAGE SUPPRESSOR	
SCR CENTER TAP COMMON CATHODE	CIRCUIT 7			
HYBRID DOUBLER	CIRCUIT 8			

**M25/M25E OUTLINE/MOUNTING DIMENSIONS**

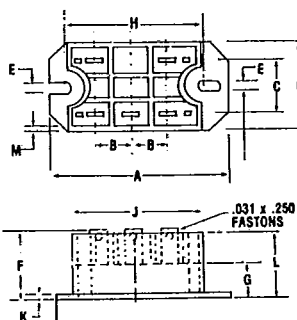
**M25 CASE DIMENSIONS**



DIM.	INCHES		MILLIMETERS	
	MAX.	MIN.	MAX.	MIN.
A	2.510	2.490	63.80	63.20
B	0.510	0.490	13.00	12.40
C	0.880	0.860	22.40	21.80
D	1.255	1.245	31.90	31.60
E	0.205	0.195	5.20	4.95
F	1.010	0.940	25.60	23.90
G	0.590	0.560	14.99	14.22
H	1.970	1.940	50.00	49.30
J	1.930	1.900	49.00	48.20
K	0.067	0.057	1.70	1.44

MOUNTING TORQUE REQUIRED  
(A) Mounting Screws.....20 In.-lb.

**M25E CASE DIMENSIONS**



Case M25E, which features an insulated terminal barrier, can be substituted for case M25 as all electrical specifications are identical.

DIM.	INCHES		MILLIMETERS	
	MAX.	MIN.	MAX.	MIN.
A	2.510	2.490	63.80	63.20
B	0.510	0.490	13.00	12.40
C	0.880	0.860	22.40	21.80
D	1.255	1.245	31.90	31.60
E	0.205	0.195	5.20	4.95
F	1.010	0.940	25.60	23.90
G	0.590	0.560	14.99	14.22
H	1.970	1.940	50.00	49.30
J	1.930	1.900	49.00	48.20
K	0.067	0.057	1.70	1.44
L	0.940	0.860	23.88	21.85
M	0.052	0.048	1.32	1.22

MOUNTING TORQUE REQUIRED  
Mounting Screws.....20 In.-lb.