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## Three Phase Bridge (Power Modules), 25 A to 35 A



D-63

### FEATURES

- Universal, 3 way terminals: push-on, wrap around or solder
- High thermal conductivity package, electrically insulated case
- Center hole fixing
- Excellent power/volume ratio
- UL E300359 approved 
- Nickel plated terminals solderable using lead (Pb)-free solder; solder alloy Sn/Ag/Cu (SAC305); solder temperature 260 °C to 275 °C
- Designed and qualified for industrial and consumer level
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

PRIMARY CHARACTERISTICS	
$I_o$	25 A to 35 A
$V_{RRM}$	50 V to 1600 V
Package	D-63
Circuit configuration	Three phase bridge

### DESCRIPTION

A range of extremely compact, encapsulated three phase bridge rectifiers offering efficient and reliable operation. They are intended for use in general purpose and instrumentation applications.

MAJOR RATINGS AND CHARACTERISTICS				
SYMBOL	CHARACTERISTICS	VALUES 26MT..	VALUES 36MT..	UNITS
$I_o$		25	35	A
	$T_C$	70	60	°C
$I_{FSM}$	50 Hz	360	475	A
	60 Hz	375	500	
$i^2t$	50 Hz	635	1130	A <sup>2</sup> s
	60 Hz	580	1030	
$V_{RRM}$		50 to 1600		V
$T_J$		-55 to +150		°C

### ELECTRICAL SPECIFICATIONS

VOLTAGE RATINGS				
TYPE NUMBER	VOLTAGE CODE	$V_{RRM}$ , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	$V_{RSM}$ , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	$I_{RRM}$ MAXIMUM AT $T_J$ MAXIMUM mA
VS-26MT.. VS-36MT..	05	50	75	2
	10	100	150	
	20	200	275	
	40	400	500	
	60	600	725	
	80	800	900	
	100	1000	1100	
	120	1200	1300	
	140	1400	1500	
	160	1600	1700	

FORWARD CONDUCTION							
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES 26MT..	VALUES 36MT..	UNITS	
Maximum DC output current at $T_C$	$I_O$	120° rect. conduction angle		25	35	A	
				70	60	°C	
Maximum peak, one-cycle non-repetitive forward current	$I_{FSM}$	t = 10 ms	No voltage reapplied	Initial $T_J = T_J$ maximum	360	475	A
		t = 8.3 ms			375	500	
		t = 10 ms	100 % $V_{RRM}$ reapplied		300	400	
		t = 8.3 ms			314	420	
Maximum $I^2t$ for fusing	$I^2t$	t = 10 ms	No voltage reapplied	Initial $T_J = T_J$ maximum	635	1130	A <sup>2</sup> s
		t = 8.3 ms			580	1030	
		t = 10 ms	100 % $V_{RRM}$ reapplied		450	800	
		t = 8.3 ms			410	730	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	$I^2t$ for time $t_x = I^2\sqrt{t} \times \sqrt{t_x}$ ; $0.1 \leq t_x \leq 10$ ms, $V_{RRM} = 0$ V		6360	11 300	A <sup>2</sup> √s	
Low level of threshold voltage	$V_{F(TO)1}$	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$ , $T_J$ maximum		0.88	0.86	V	
High level of threshold voltage	$V_{F(TO)2}$	$(I > \pi \times I_{F(AV)})$ , $T_J$ maximum		1.13	1.03		
Low level forward slope resistance	$r_{t1}$	$(16.7\% \times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)})$ , $T_J$ maximum		7.9	6.3	mΩ	
High level forward slope resistance	$r_{t2}$	$(I > \pi \times I_{F(AV)})$ , $T_J$ maximum		5.2	5.0		
Maximum forward voltage drop	$V_{FM}$	$T_J = 25$ °C, $I_{FM} = 40$ Apk - per single junction		1.26	1.19	V	
Maximum DC reverse current	$I_{RRM}$	$T_J = 25$ °C, per junction at rated $V_{RRM}$		100		μA	
RMS isolation voltage	$V_{INS}$	$T_J = 25$ °C, all terminal shorted; f = 50 Hz, t = 1 s		2700		V	

THERMAL - MECHANICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES 26MT	VALUES 36MT	UNITS
Maximum junction and storage temperature range	$T_J, T_{Stg}$			-55 to +150		°C
Maximum thermal resistance, junction to case	$R_{thJC}$	DC operation per bridge (based on total power loss of bridge)		1.42	1.35	K/W
Maximum thermal resistance, case to heatsink	$R_{thCS}$	Mounting surface, smooth, flat and greased		0.2	0.2	
Approximate weight				20		g
Mounting torque ± 10 %		Bridge to heatsink with screw M4		2.0		Nm

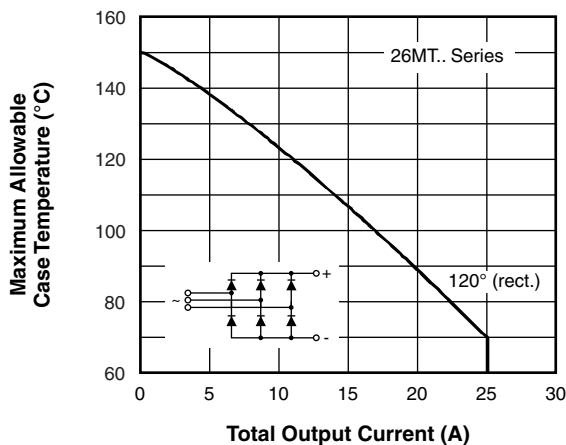


Fig. 1 - Current Ratings Characteristics

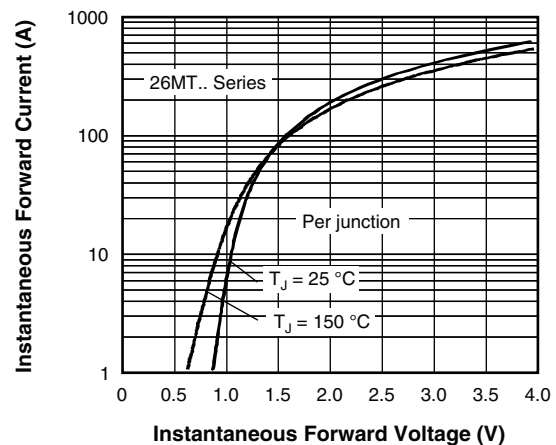


Fig. 2 - Forward Voltage Drop Characteristics

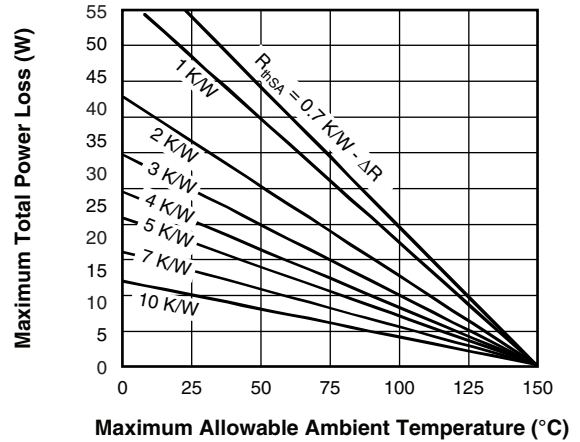
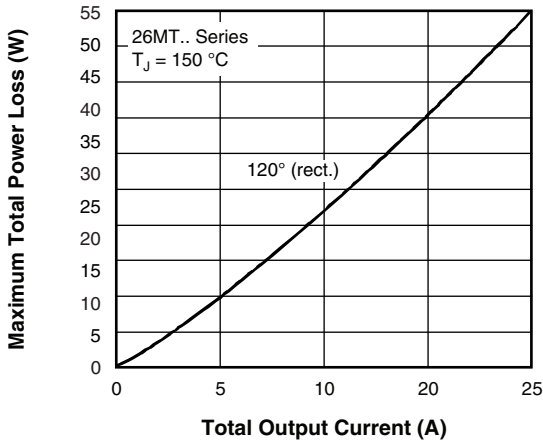


Fig. 3 - Total Power Loss Characteristics

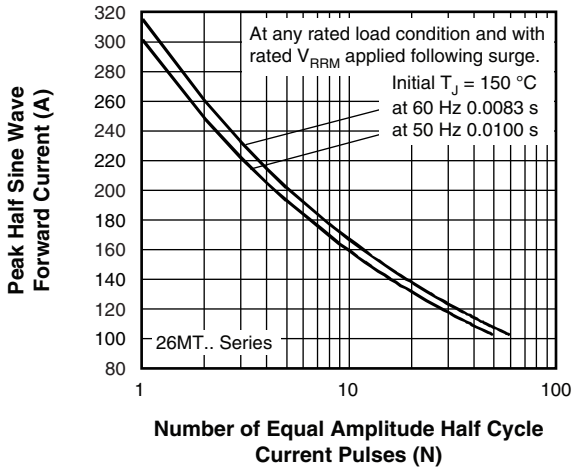


Fig. 4 - Maximum Non-Repetitive Surge Current

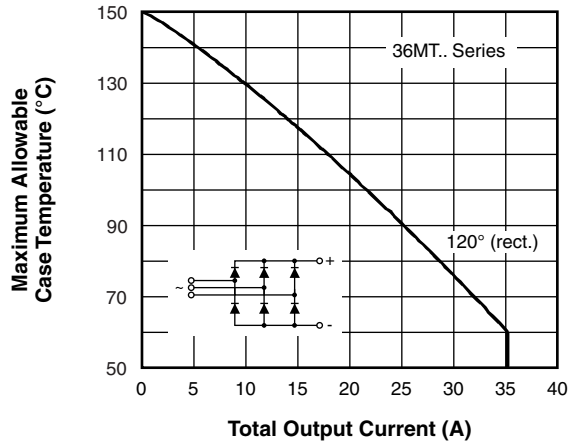


Fig. 6 - Current Ratings Characteristics

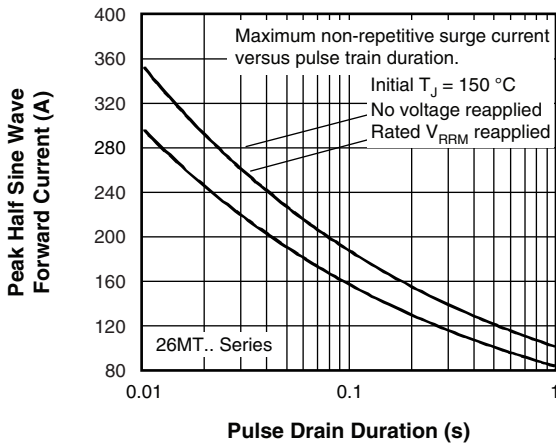


Fig. 5 - Maximum Non-Repetitive Surge Current

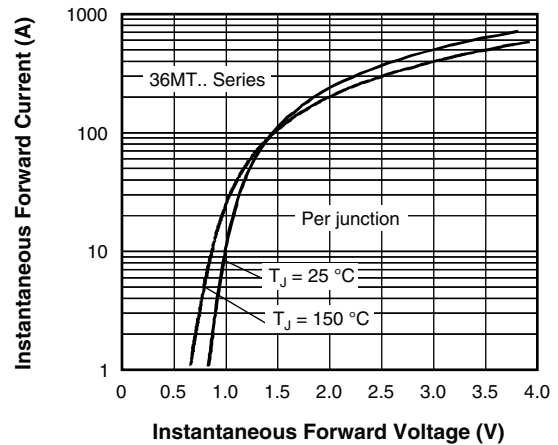


Fig. 7 - Forward Voltage Drop Characteristics

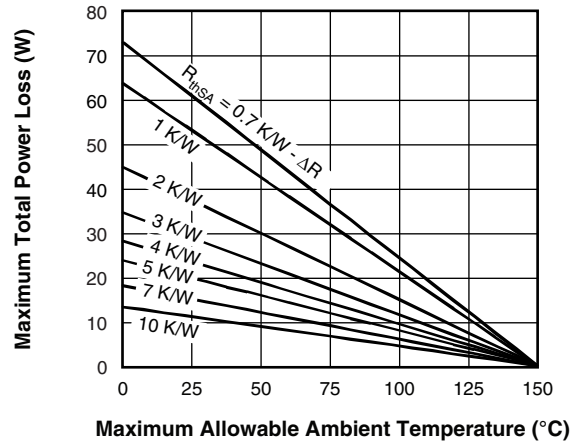
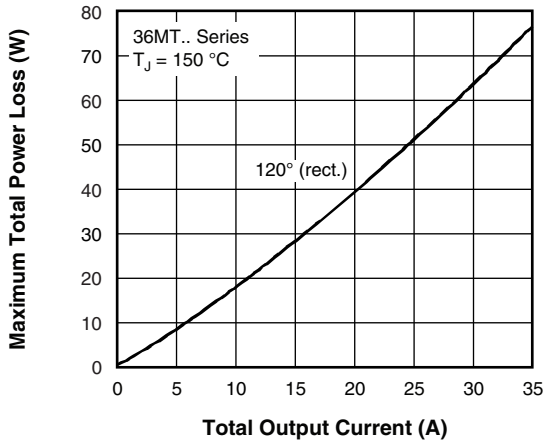


Fig. 8 - Total Power Loss Characteristics

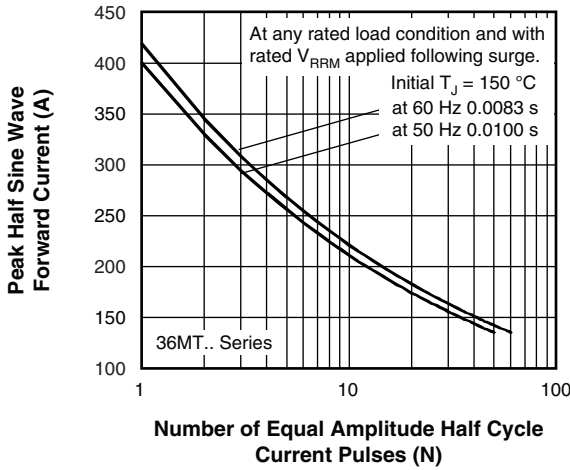


Fig. 9 - Maximum Non-Repetitive Surge Current

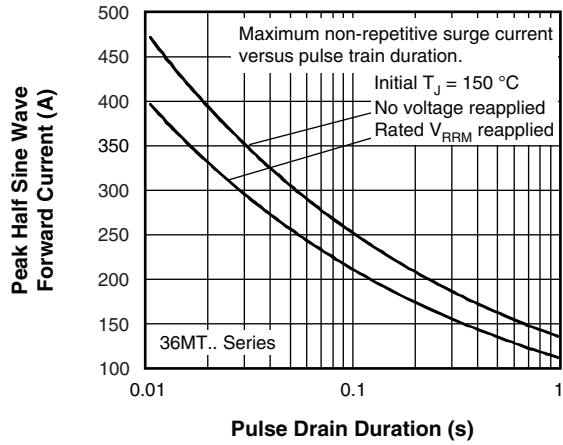


Fig. 10 - Maximum Non-Repetitive Surge Current

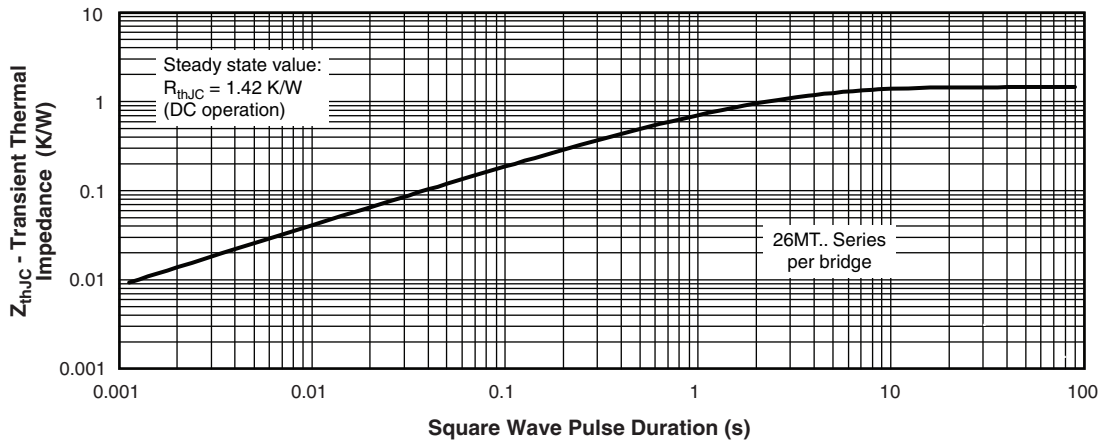
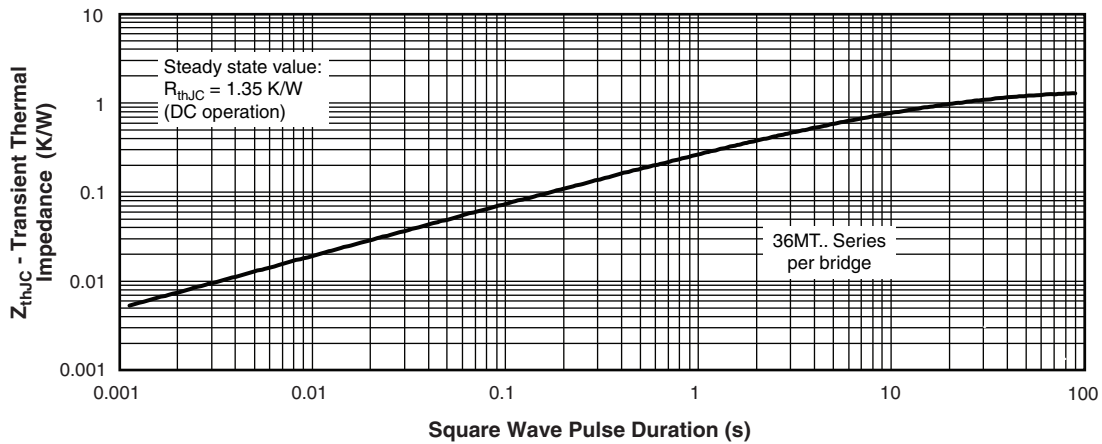
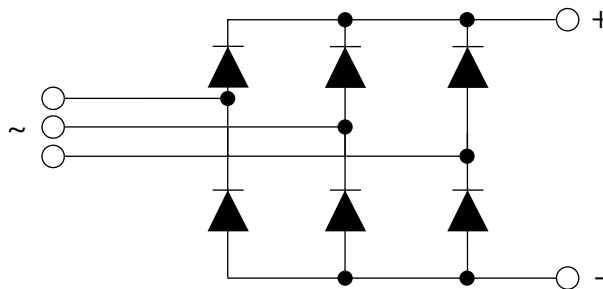


Fig. 11 - Thermal Impedance  $Z_{thJC}$  Characteristics


 Fig. 12 - Thermal Impedance  $Z_{thJC}$  Characteristics

**ORDERING INFORMATION TABLE**

Device code	<b>VS-</b>	<b>36</b>	<b>MT</b>	<b>160</b>
	①	②	③	④
	1	2	3	4
	1	- Vishay Semiconductors product		
	2	- Current rating code	26 = 25 A (average) 36 = 35 A (average)	
	3	- Basic part number		
	4	- Voltage code x 10 = $V_{RRM}$		

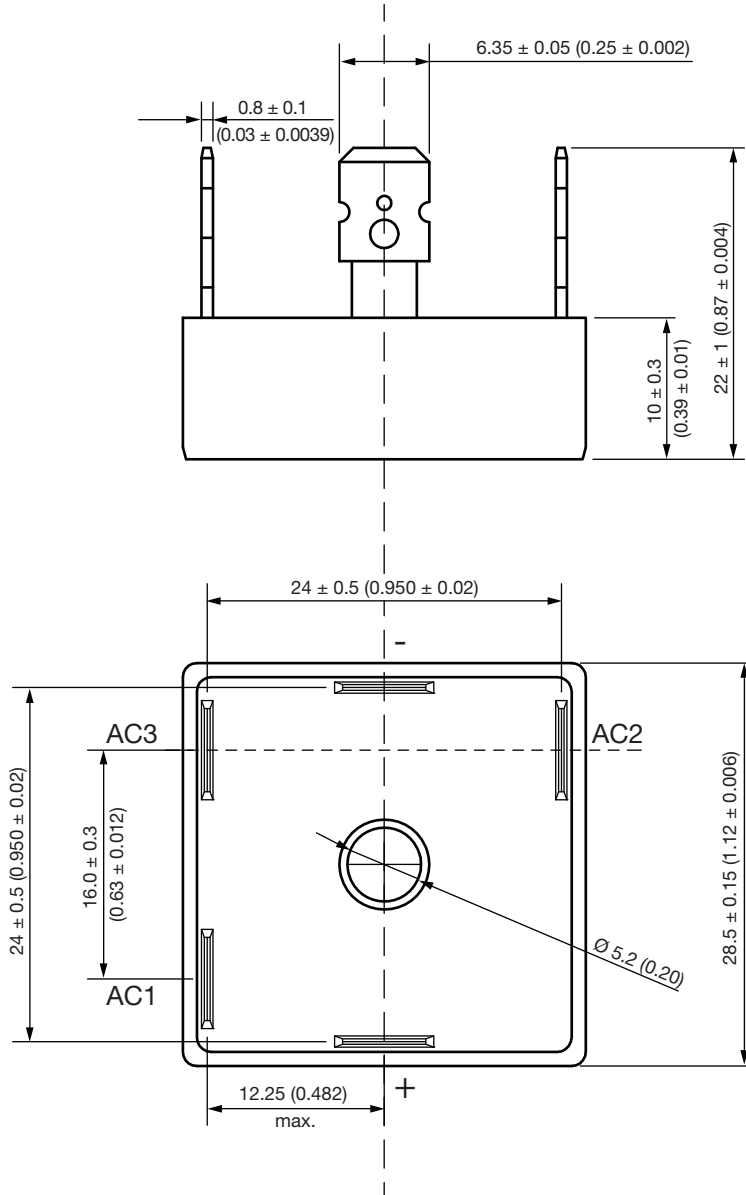
**CIRCUIT CONFIGURATION**

**LINKS TO RELATED DOCUMENTS**

Dimensions	<a href="http://www.vishay.com/doc?95251">www.vishay.com/doc?95251</a>
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## D-63

**DIMENSIONS** in millimeters (inches)



Not to scale



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