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

RoHS COMPLIANT

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.

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

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^2s
	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		635	1130	A^2s
		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 $t_x = I^2\sqrt{t} \times \sqrt{t_x}$; $0.1 \le t_x \le 10$ ms, V_{RRM} = 0 V			6360	11 300	$A^2\sqrt{s}$
Low level of threshold voltage	$V_{F(TO)1}$	(16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), T_J maximum			0.88	0.86	V
High level of threshold voltage	$V_{F(TO)2}$	(I > π x $I_{F(AV)}$), T_J maximum			1.13	1.03	
Low level forward slope resistance	r_{t1}	(16.7 % x π x $I_{F(AV)}$ < I < π x $I_{F(AV)}$), T_J maximum			7.9	6.3	mΩ
High level forward slope resistance	r_{t2}	(I > π x $I_{F(AV)}$), 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

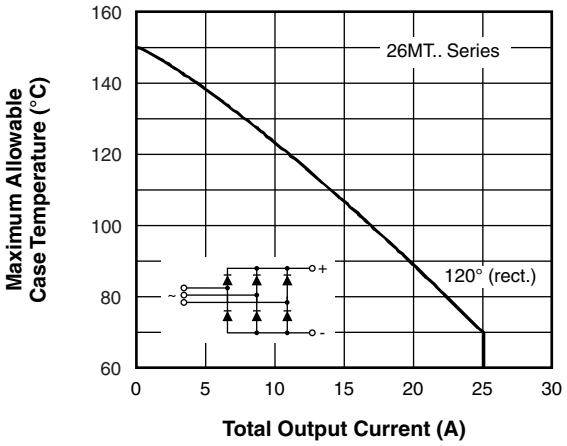


Fig. 1 - Current Ratings Characteristics

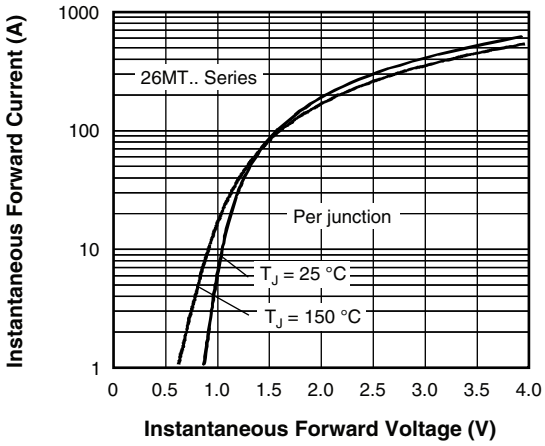
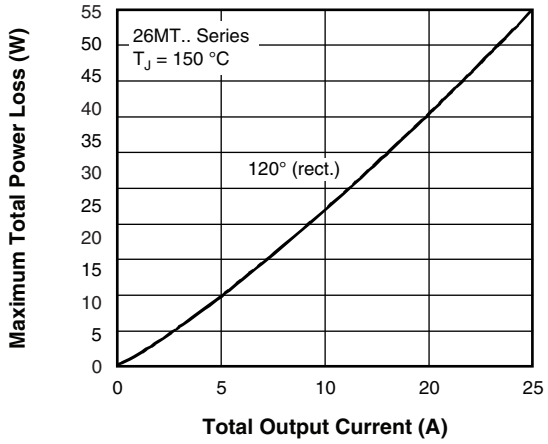


Fig. 2 - Forward Voltage Drop Characteristics



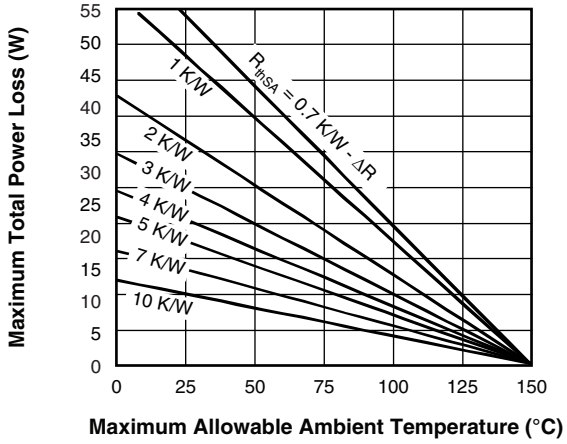


Fig. 3 - Total Power Loss Characteristics

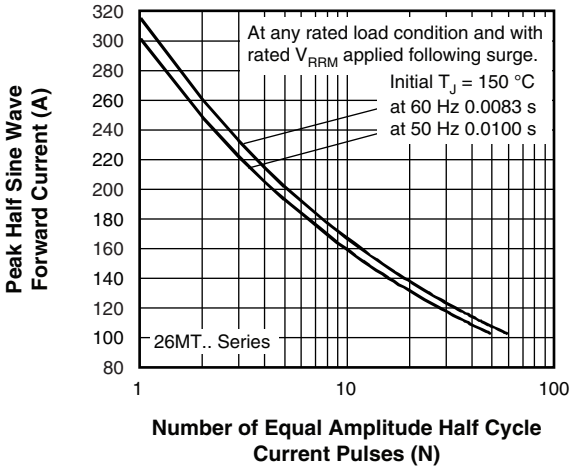


Fig. 4 - Maximum Non-Repetitive Surge Current

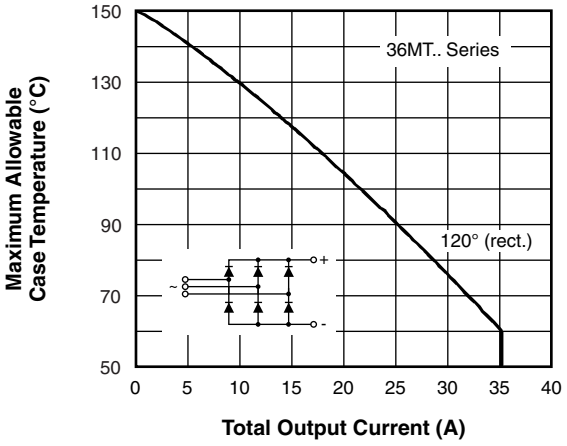


Fig. 6 - Current Ratings Characteristics

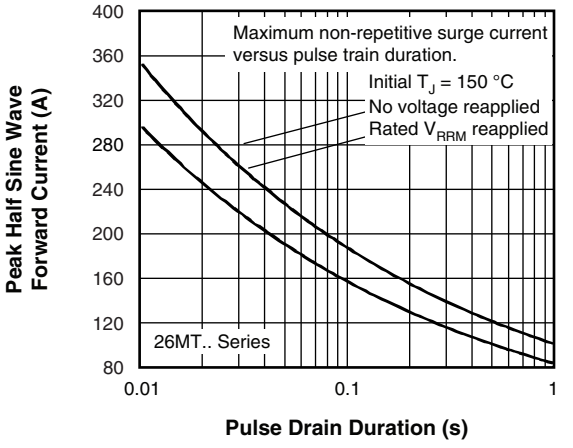


Fig. 5 - Maximum Non-Repetitive Surge Current

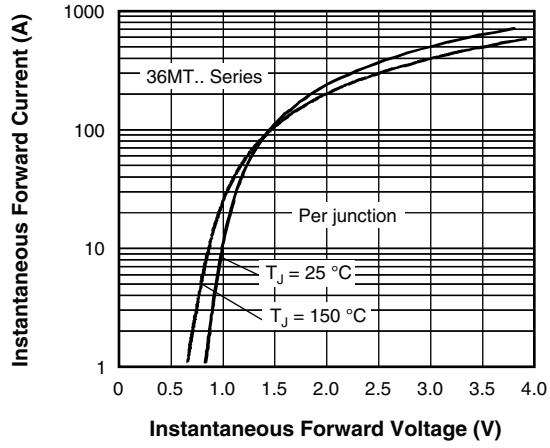


Fig. 7 - Forward Voltage Drop Characteristics

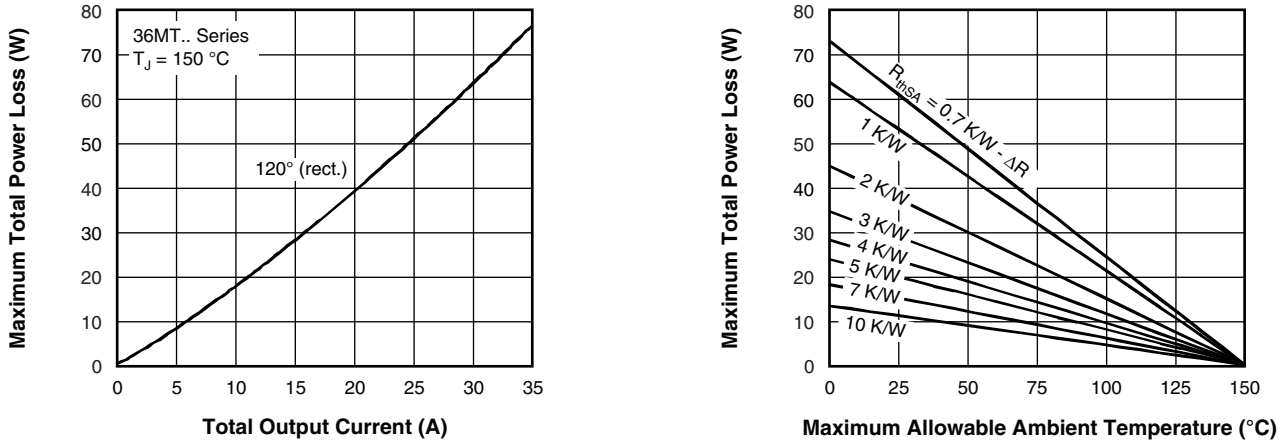


Fig. 8 - Total Power Loss Characteristics

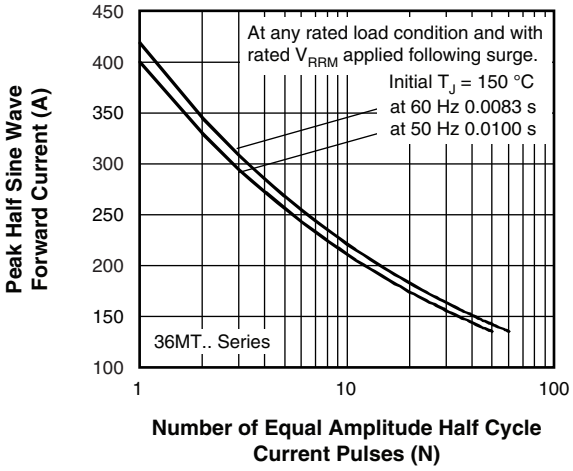


Fig. 9 - Maximum Non-Repetitive Surge Current

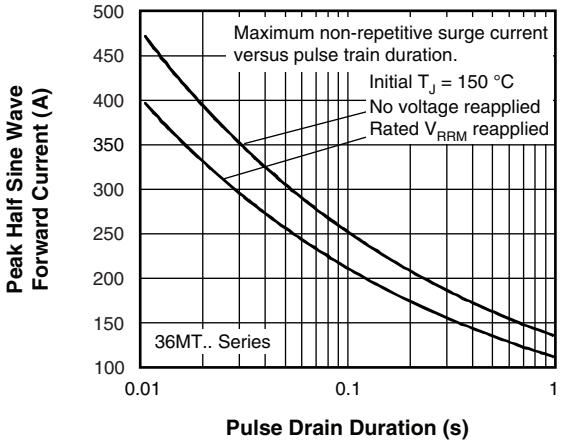


Fig. 10 - Maximum Non-Repetitive Surge Current

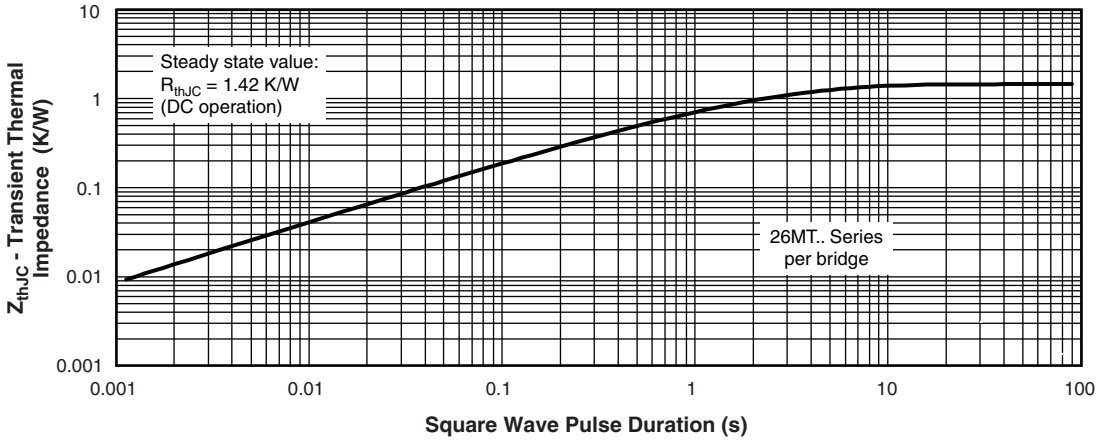


Fig. 11 - Thermal Impedance Z_{thJC} Characteristics

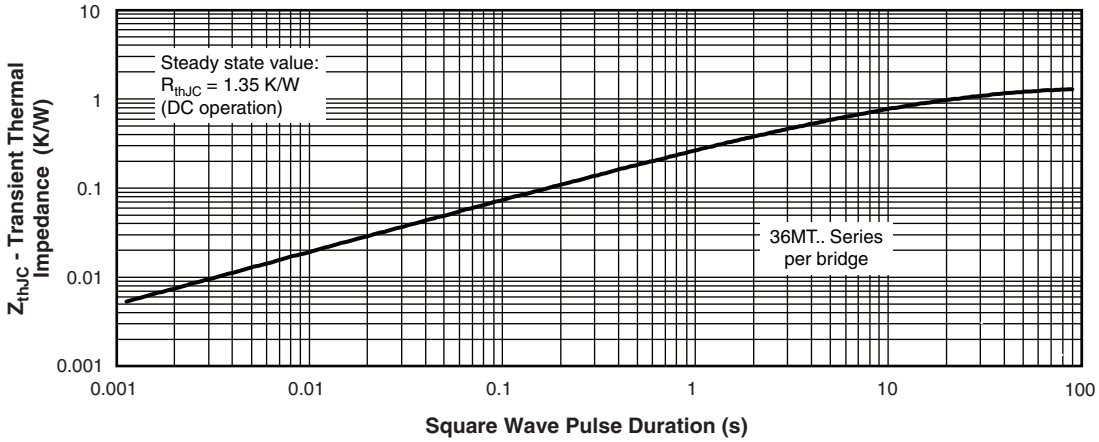


Fig. 12 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code

VS-	36	MT	160
1	2	3	4

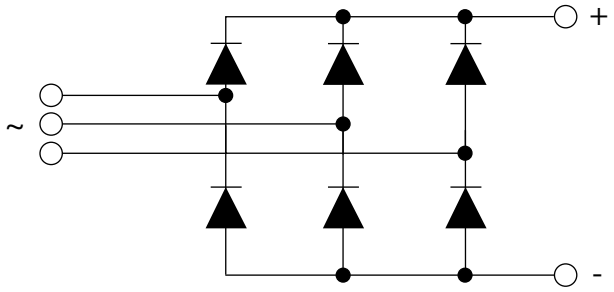
1 - Vishay Semiconductors product

2 - Current rating code — 26 = 25 A (average), 36 = 35 A (average)

3 - Basic part number

4 - Voltage code x 10 = V_{RRM}

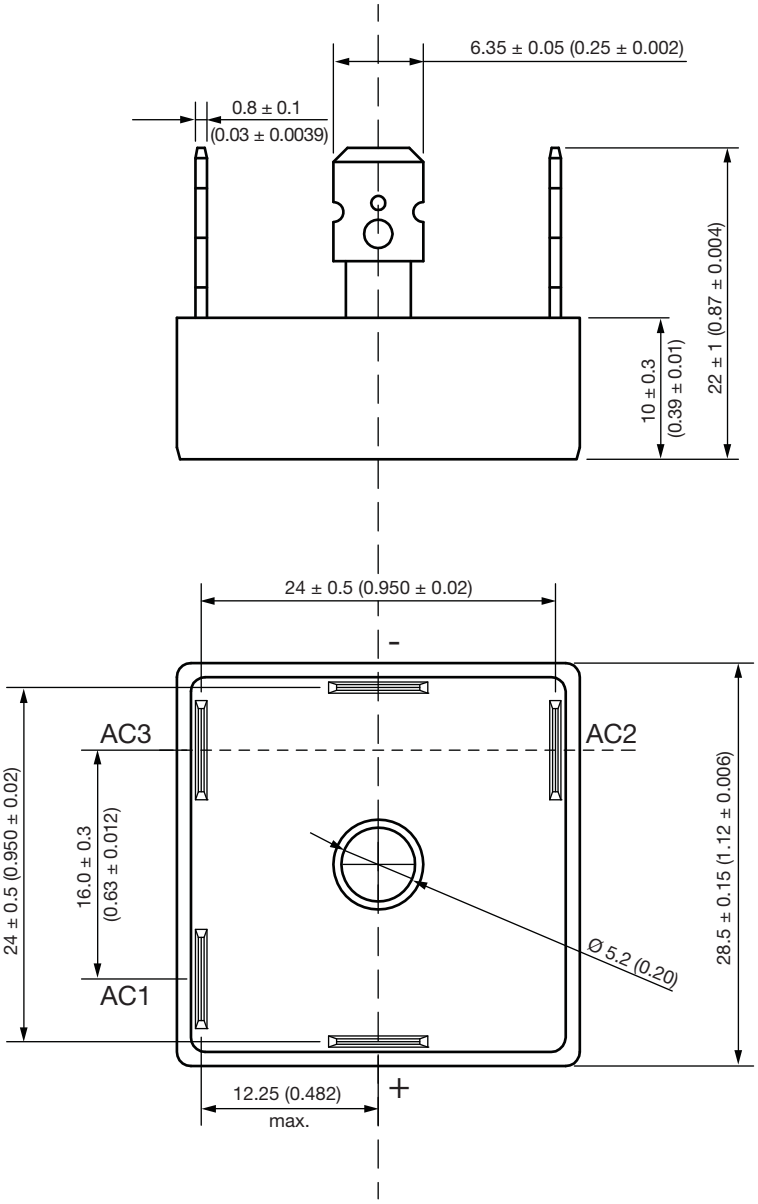
CIRCUIT CONFIGURATION



LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95251

D-63

DIMENSIONS in millimeters (inches)



Not to scale

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