ON-STATE CONDUCTION						
PARAMETER	**SYMBOL**	**TEST CONDITIONS**			**VALUES**	**UNITS**
Maximum DC output current at case temperature	I_O	Full bridge			25	A
					85	°C
Maximum peak, one-cycle non-repetitive on-state or forward current	I_{TSM}, I_{FSM}	t = 10 ms	No voltage reapplied	Sinusoidal half wave, initial $T_J = T_J$ maximum	357	A
		t = 8.3 ms			375	
		t = 10 ms	100 % V_{RRM} reapplied		300	
		t = 8.3 ms			315	
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reapplied		637	A^2s
		t = 8.3 ms			580	
		t = 10 ms	100 % V_{RRM} reapplied		450	
		t = 8.3 ms			410	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 ms to 10 ms, no voltage reapplied I^2t for time tx = $I^2\sqrt{t} \cdot \sqrt{tx}$			6365	$A^2\sqrt{s}$
Maximum value of threshold voltage	$V_{T(TO)}$	T_J = 125 °C			0.82	V
Maximum level value of on-state slope resistance	r_{t1}	T_J = 125 °C, average power = $V_{T(TO)} \times I_{T(AV)} + r_t + (I_{T(RMS)})^2$			12	mΩ
Maximum on-state voltage drop	V_{TM}	$I_{TM} = \pi \times I_{T(AV)}$		T_J = 25 °C	1.35	V
Maximum forward voltage drop	V_{FM}	$I_{FM} = \pi \times I_{F(AV)}$		T_J = 25 °C	1.35	V
Maximum non-repetitive rate of rise of turned-on current	dI/dt	T_J = 125 °C from 0.67 V_{DRM} $I_{TM} = \pi \times I_{T(AV)}$, I_g = 500 mA, t_r < 0.5 µs, t_p > 6 µs			200	A/µs
Maximum holding current	I_H	T_J = 25 °C anode supply = 6 V, resistive load, gate open			130	mA
Maximum latching current	I_L	T_J = 25 °C anode supply = 6 V, resistive load			250	

BLOCKING				
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNITS**
Maximum critical rate of rise of off-state voltage	dV/dt	T_J = 125 °C, exponential to 0.67 V_{DRM} gate open	200	V/µs
Maximum peak reverse and off-state leakage current at V_{RRM}, V_{DRM}	I_{RRM}, I_{DRM}	T_J = 125 °C, gate open circuit	10	mA
Maximum peak reverse leakage current	I_{RRM}	T_J = 25 °C	100	µA
RMS isolation voltage	V_{ISOL}	50 Hz, circuit to base, all terminals shorted, T_J = 25 °C, t = 1 s	2500	V

TRIGGERING					
PARAMETER	**SYMBOL**	**TEST CONDITIONS**		**VALUES**	**UNITS**
Maximum peak gate power	P_{GM}			8	W
Maximum average gate power	$P_{G(AV)}$			2	
Maximum peak gate current	I_{GM}			2	A
Maximum peak negative gate voltage	$-V_{GM}$			10	V
Maximum gate voltage required to trigger	V_{GT}	T_J = -40 °C	Anode supply = 6 V resistive load	3	V
		T_J = 25 °C		2	
		T_J = 125 °C		1	
Maximum gate current required to trigger	I_{GT}	T_J = -40 °C		90	mA
		T_J = 25 °C		60	
		T_J = 125 °C		35	
Maximum gate voltage that will not trigger	V_{GD}	T_J = 125 °C, rated V_{DRM} applied		0.2	V
Maximum gate current that will not trigger	I_{GD}			2	mA

THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNITS**
Maximum junction operating and storage temperature range	T_J, T_{Stg}		-40 to +125	°C
Maximum thermal resistance, junction to case per junction	R_{thJC}	DC operation	2.24	K/W
Maximum thermal resistance, case to heatsink	R_{thCS}	Mounting surface, smooth and greased	0.10	
Mounting torque, base to heatsink (1)			4	Nm
Approximate weight			58	g
			2.0	oz.
Case style			PACE-PAK (D-19)	

Note

(1) A mounting compound is recommended and the torque should be checked after a period of 3 hours to allow for the spread of the compound

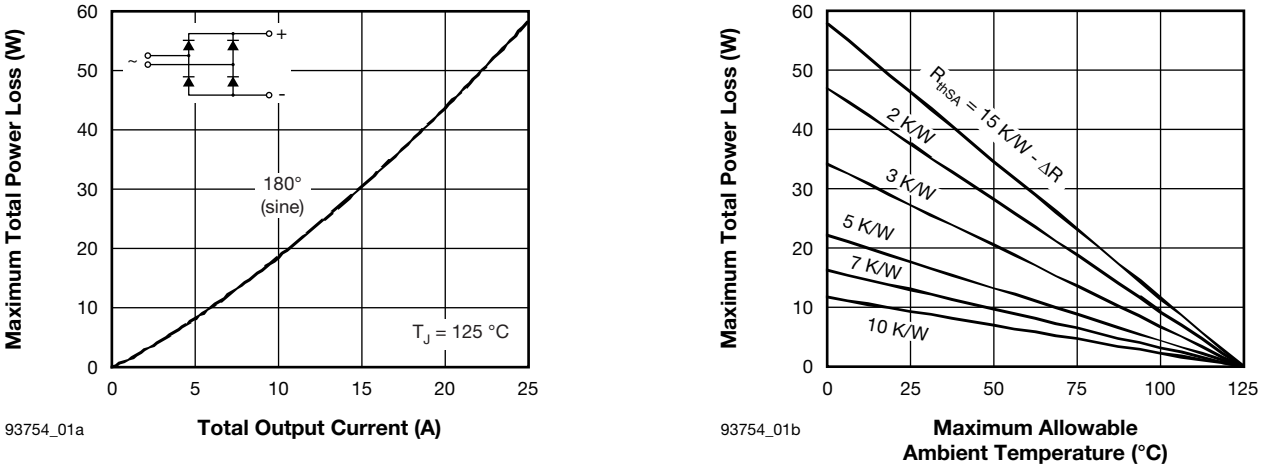


Fig. 1 - Current Ratings Nomogram (1 Module Per Heatsink)

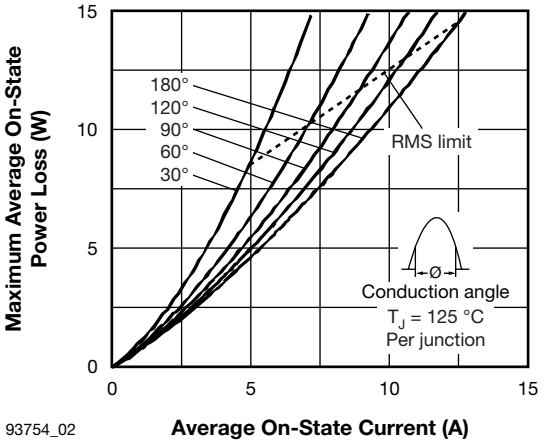


Fig. 2 - On-State Power Loss Characteristics

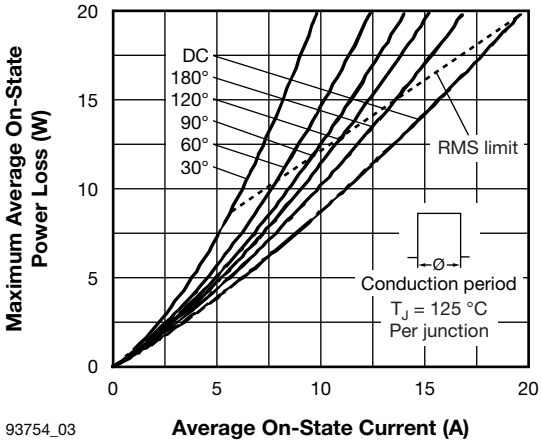


Fig. 3 - On-State Power Loss Characteristics

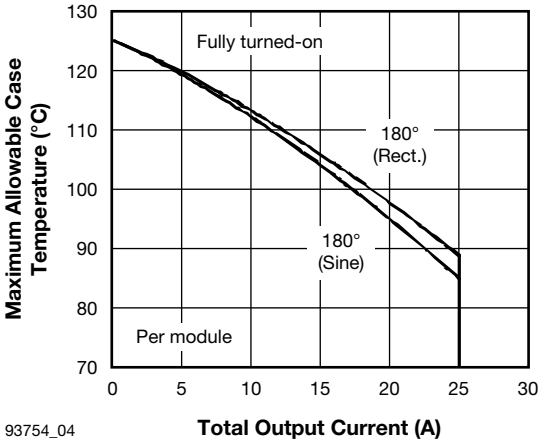


Fig. 4 - Current Ratings Characteristics

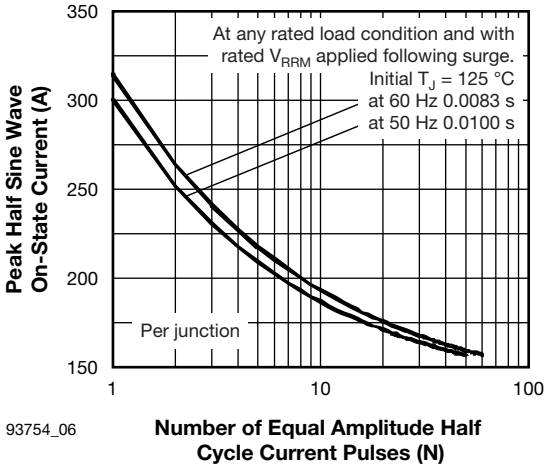


Fig. 6 - Maximum Non-Repetitive Surge Current

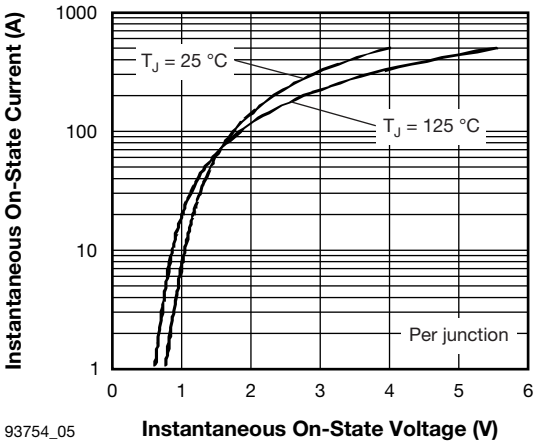


Fig. 5 - On-State Voltage Drop Characteristics

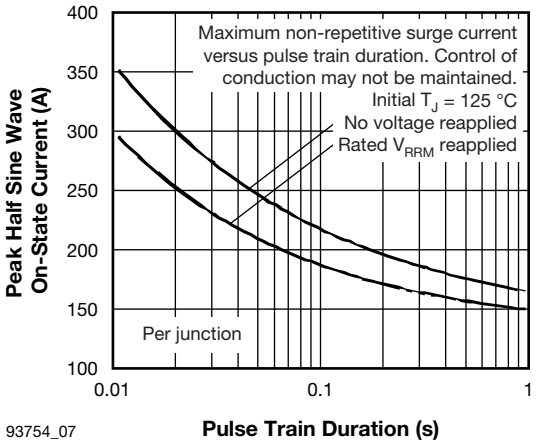


Fig. 7 - Maximum Non-Repetitive Surge Current

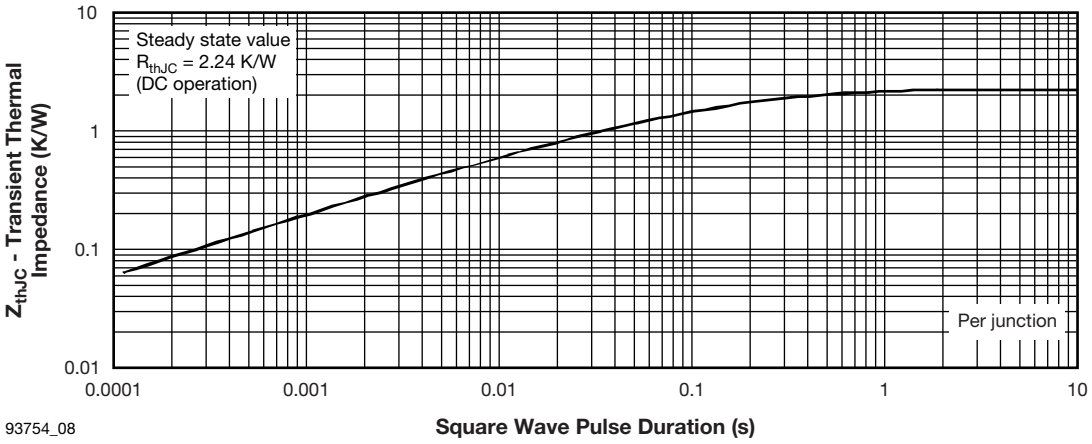


Fig. 8 - Thermal Impedance Z_{thJC} Characteristics

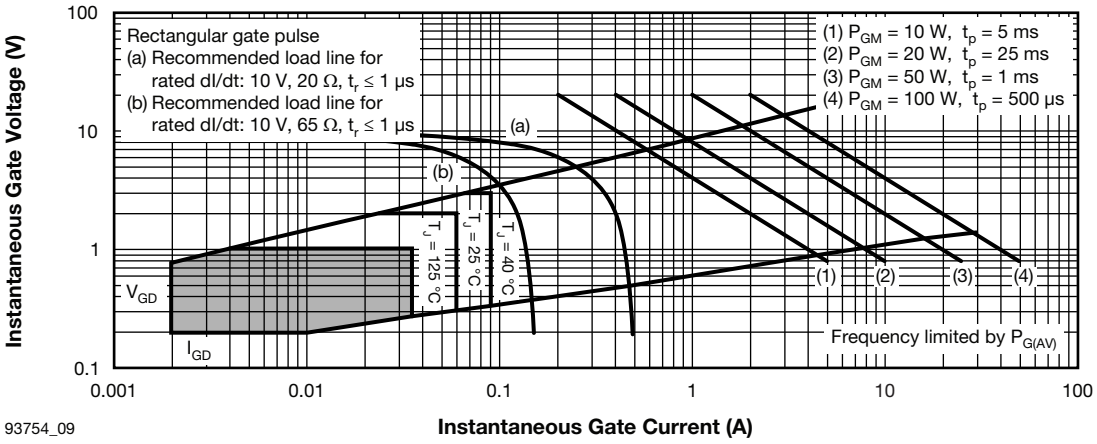


Fig. 9 - Gate Characteristics

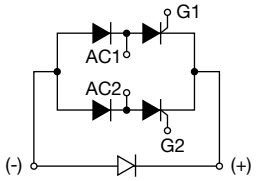
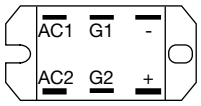
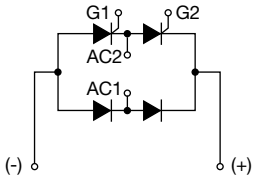
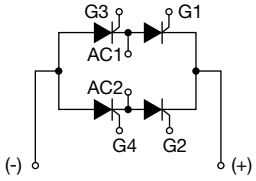
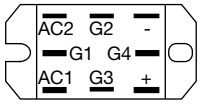
ORDERING INFORMATION TABLE

Device code

VS-	P	1	0	2	K	W
1	2	3	4	5	6	7

- **1** - Vishay Semiconductors product
- **2** - Module type
- **3** - Current rating
  - 1 = 25 A DC (P100 series)
  - 4 = 40 A DC (P400 series)
- **4** - Circuit configuration
  - 0 = single phase, hybrid bridge common cathode
  - 2 = single phase, hybrid bridge doubler connection
  - 3 = single phase, all SCR Bridge
- **5** - Voltage code
  - 1 = 400 V
  - 2 = 600 V
  - 3 = 800 V
  - 4 = 1000 V
  - 5 = 1200 V
- **6** - K = optional voltage suppression
- **7** - W = optional freewheeling diode

CIRCUIT CONFIGURATION

CIRCUIT DESCRIPTION	CIRCUIT CONFIGURATION CODE	SCHEMATIC DIAGRAM	TERMINAL POSITIONS
Single phase, hybrid bridge common cathode	0		
Single phase, hybrid bridge doubler connection	2		
Single phase, all SCR bridge	3		

CODING (1)

CIRCUIT DESCRIPTION	CIRCUIT CONFIGURATION CODE	BASIC SERIES	WITH VOLTAGE SUPPRESSION	WITH FREEWHEELING DIODE	WITH BOTH VOLTAGE SUPPRESSION AND FREEWHEELING DIODE
Single phase, hybrid bridge common cathode	0	P10.	P10.K	P10.W	P10.KW
Single phase, hybrid bridge doubler connection	2	P12.	P12.K	-	-
Single phase, all SCR bridge	3	P13.	P13.K	-	-

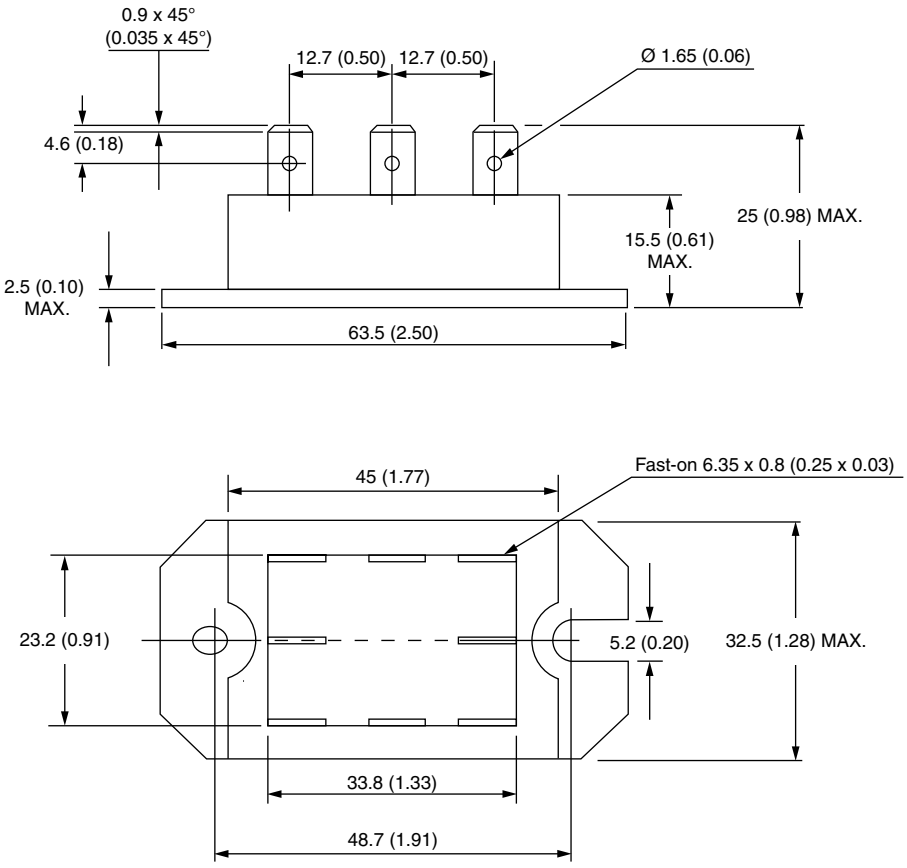
Note

(1) To complete code refer to Voltage Ratings table, i.e.: for 600 V P10.W complete code is P102W

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95335

D-19 PACE-PAK

DIMENSIONS in millimeters (inches)



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Vishay:

VS-P101W VS-P103KW VS-P103W VS-P104W VS-P105W VS-P123 VS-P132 VS-P102W VS-P103 VS-P102 VS-P105KW VS-P104 VS-P134 VS-P133 VS-P105 VS-P121 VS-P125 VS-P102KW VS-P124 VS-P135 VS-P101 VS-P122 VS-P131 VS-P101KW