

ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum forward voltage drop per leg See fig. 1	V <sub>FM</sub> <sup>(1)</sup>	6 A	T <sub>J</sub> = 25 °C	0.80	V	
		12 A		0.95		
		6 A	T <sub>J</sub> = 125 °C	0.65		
		12 A		0.78		
Maximum reverse leakage current per leg See fig. 2	I <sub>RM</sub> <sup>(1)</sup>	T <sub>J</sub> = 25 °C	V <sub>R</sub> = Rated V <sub>R</sub>	1	mA	
		T <sub>J</sub> = 125 °C		4		
Threshold voltage	V <sub>F(TO)</sub>	T <sub>J</sub> = T <sub>J</sub> maximum		0.47	V	
Forward slope resistance	r <sub>f</sub>			20.68	mΩ	
Typical junction capacitance per leg	C <sub>T</sub>	V <sub>R</sub> = 5 V <sub>DC</sub> , (test signal range 100 kHz to 1 MHz), 25 °C		183	pF	
Typical series inductance per leg	L <sub>S</sub>	Measured lead to lead 5 mm from package body		5.0	nH	

**Note**

(1) Pulse width < 300 µs, duty cycle < 2 %

THERMAL - MECHANICAL SPECIFICATIONS					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum junction and storage temperature range	T <sub>J</sub> <sup>(1)</sup> , T <sub>Stg</sub>			-55 to +150	°C
Maximum thermal resistance, junction to case	per leg per device	R <sub>thJC</sub>	DC operation See fig. 4		°C/W
			3.0		
Approximate weight				1.5	oz.
				0.3	
Marking device		Case style D-PAK (similar to TO-252AA)		12CWQ10FN	

**Note**

(1)  $\frac{dP_{tot}}{dT_J} < \frac{1}{R_{thJA}}$  thermal runaway condition for a diode on its own heatsink

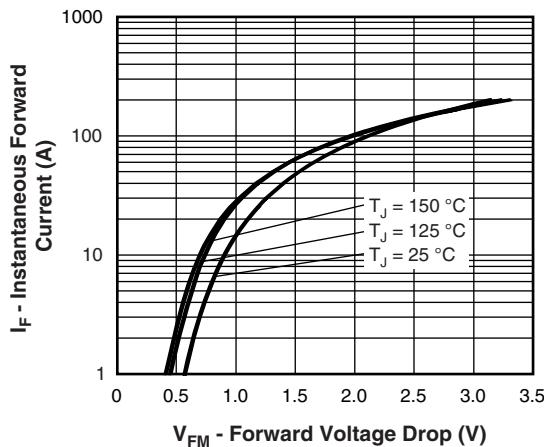


Fig. 1 - Maximum Forward Voltage Drop Characteristics  
(Per Leg)

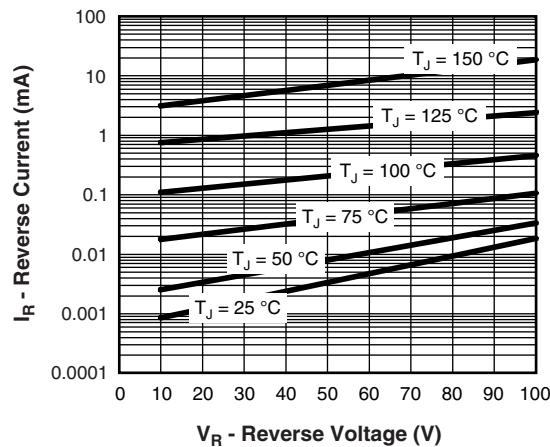


Fig. 2 - Typical Values of Reverse Current vs.  
Reverse Voltage (Per Leg)

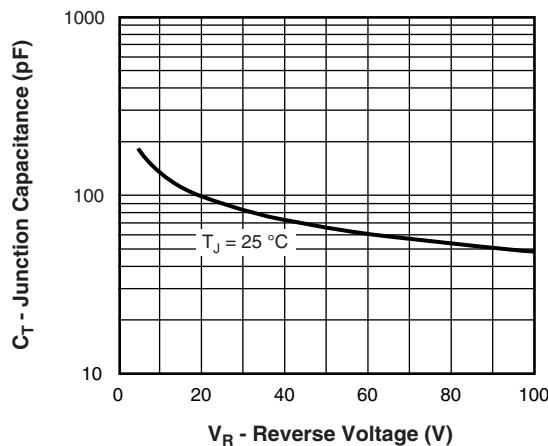


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

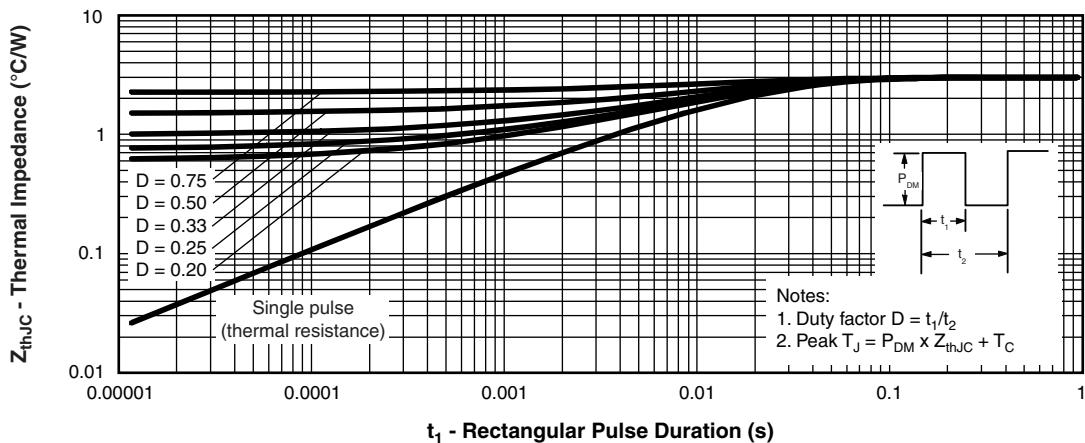


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)

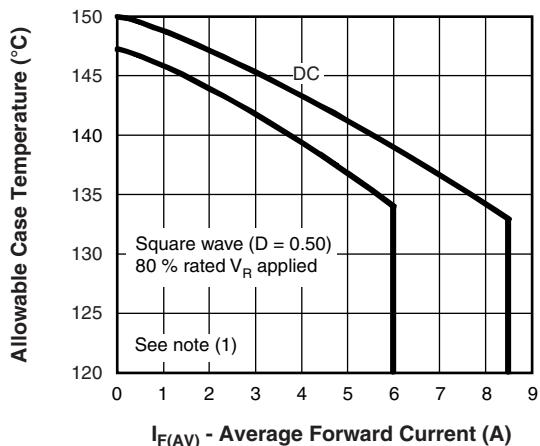


Fig. 5 - Maximum Allowable Case Temperature vs.  
Average Forward Current (Per Leg)

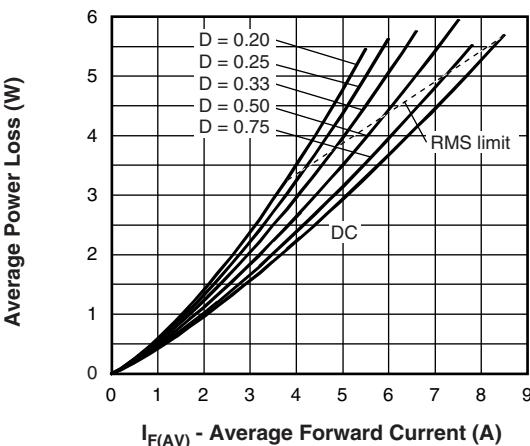


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

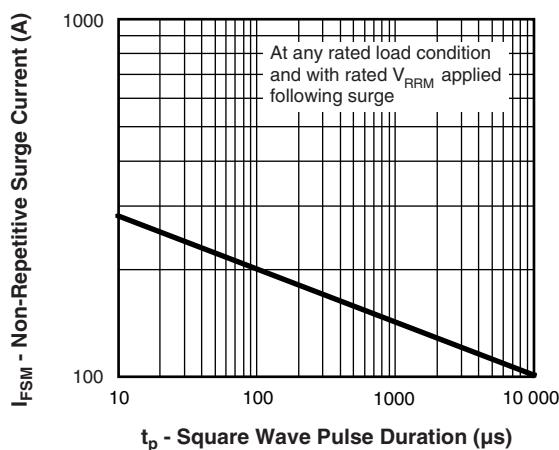


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

#### Note

(1) Formula used:  $T_C = T_J - (P_d + P_{dREV}) \times R_{thJC}$ ;  
 $P_d$  = forward power loss =  $I_{F(AV)} \times V_{FM}$  at  $(I_{F(AV)}/D)$  (see fig. 6);  
 $P_{dREV}$  = inverse power loss =  $V_{R1} \times I_R (1 - D)$ ;  $I_R$  at  $V_{R1} = 80\%$  rated  $V_R$

**ORDERING INFORMATION TABLE**

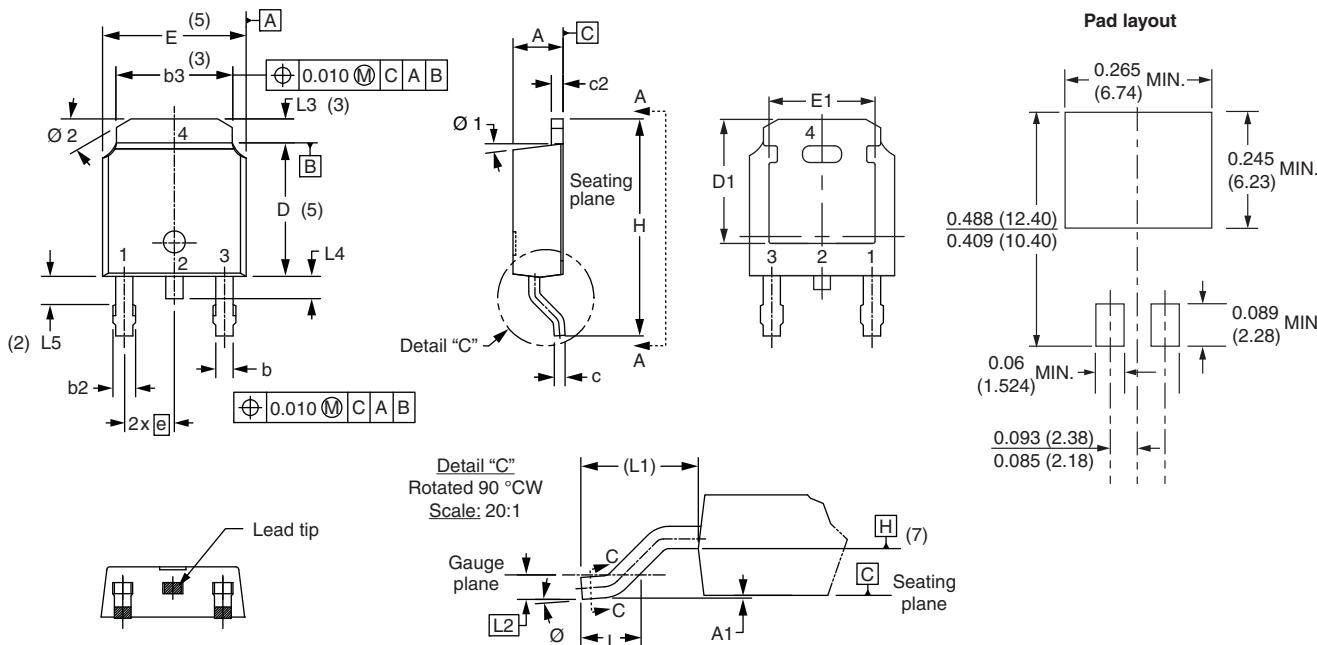
Device code	VS-	12	C	W	Q	10	FN	TRL	PbF
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

- 1** - Vishay Semiconductors product
- 2** - Current rating (12 A)
- 3** - Center tap configuration
- 4** - Package identifier:  
W = D-PAK
- 5** - Schottky "Q" series
- 6** - Voltage rating (10 = 100 V)
- 7** - FN = TO-252AA
- 8** - • None = tube (50 pieces)  
• TR = tape and reel  
• TRL = tape and reel (left oriented)  
• TRR = tape and reel (right oriented)
- 9** - PbF = lead (Pb)-free

LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95016">www.vishay.com/doc?95016</a>
Part marking information	<a href="http://www.vishay.com/doc?95059">www.vishay.com/doc?95059</a>
Packaging information	<a href="http://www.vishay.com/doc?95033">www.vishay.com/doc?95033</a>
SPICE model	<a href="http://www.vishay.com/doc?95177">www.vishay.com/doc?95177</a>

### D-PAK (TO-252AA)

**DIMENSIONS** in millimeters and inches



SYMBOL	MILLIMETERS		INCHES		NOTES	SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.			MIN.	MAX.	MIN.	MAX.	
A	2.18	2.39	0.086	0.094			2.29	BSC	0.090	BSC	
A1	-	0.13	-	0.005			9.40	10.41	0.370	0.410	
b	0.64	0.89	0.025	0.035			1.40	1.78	0.055	0.070	
b2	0.76	1.14	0.030	0.045			2.74	BSC	0.108	REF.	
b3	4.95	5.46	0.195	0.215	3		0.51	BSC	0.020	BSC	
c	0.46	0.61	0.018	0.024			0.89	1.27	0.035	0.050	3
c2	0.46	0.89	0.018	0.035			-	1.02	-	0.040	
D	5.97	6.22	0.235	0.245	5		1.14	1.52	0.045	0.060	2
D1	5.21	-	0.205	-	3		Ø	0°	10°	0°	10°
E	6.35	6.73	0.250	0.265	5		Ø1	0°	15°	0°	15°
E1	4.32	-	0.170	-	3		Ø2	25°	35°	25°	35°

#### Notes

- (1) Dimensioning and tolerancing as per ASME Y14.5M-1994
- (2) Lead dimension uncontrolled in L5
- (3) Dimension D1, E1, L3 and b3 establish a minimum mounting surface for thermal pad
- (4) Section C - C dimension apply to the flat section of the lead between 0.13 and 0.25 mm (0.005 and 0.10") from the lead tip
- (5) Dimension D, and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outermost extremes of the plastic body
- (6) Dimension b1 and c1 applied to base metal only
- (7) Datum A and B to be determined at datum plane H
- (8) Outline conforms to JEDEC outline TO-252AA

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