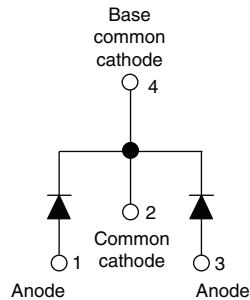


**Schottky Rectifier, 2 x 6 A****D-PAK****FEATURES**

- Popular D-PAK outline
- Center tap configuration
- Small foot print, surface mountable
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Lead (Pb)-free ("PbF" suffix)
- Designed and qualified for industrial level

**RoHS***
COMPLIANT**DESCRIPTION**

The 12CWQ10GPbF surface mount, center tap, Schottky rectifier series has been designed for applications requiring low forward drop and small foot prints on PC board. Typical applications are in disk drives, switching power supplies, converters, freewheeling diodes, battery charging, and reverse battery protection.

PRODUCT SUMMARY

$I_{F(AV)}$	2 x 6 A
V_R	100 V

MAJOR RATINGS AND CHARACTERISTICS

SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$	Rectangular waveform	12	A
V_{RRM}		100	V
I_{FSM}	$t_p = 5 \mu s$ sine	330	A
V_F	6 Apk, $T_J = 125^\circ C$ (per leg)	0.65	V
T_J	Range	- 55 to 150	$^\circ C$

VOLTAGE RATINGS

PARAMETER	SYMBOL	12CWQ10GPbF	UNITS
Maximum DC reverse voltage	V_R	100	V
Maximum working peak reverse voltage	V_{RWM}		

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum average forward current See fig. 5	$I_{F(AV)}$	50 % duty cycle at $T_C = 135^\circ C$, rectangular waveform	6	A
			12	
Maximum peak one cycle non-repetitive surge current per leg See fig. 7	I_{FSM}	5 μs sine or 3 μs rect. pulse	330	A
		10 ms sine or 6 ms rect. pulse	110	
Non-repetitive avalanche energy per leg	E_{AS}	$T_J = 25^\circ C$, $I_{AS} = 1 A$, $L = 12 mH$	6	mJ
Repetitive avalanche current per leg	I_{AR}	Current decaying linearly to zero in 1 μs Frequency limited by T_J maximum $V_A = 1.5 \times V_R$ typical	1	A

* Pb containing terminations are not RoHS compliant, exemptions may apply

12CWQ10GPbF

Vishay High Power Products Schottky Rectifier, 2 x 6 A



ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS	
Maximum forward voltage drop per leg See fig. 1	$V_{FM}^{(1)}$	6 A	$T_J = 25\text{ }^{\circ}\text{C}$	0.80	V	
		12 A		0.95		
		6 A	$T_J = 125\text{ }^{\circ}\text{C}$	0.65		0.78
		12 A				
Maximum reverse leakage current per leg See fig. 2	$I_{RM}^{(1)}$	$T_J = 25\text{ }^{\circ}\text{C}$	$V_R = \text{Rated } V_R$	0.22	mA	
		$T_J = 125\text{ }^{\circ}\text{C}$		4		
Threshold voltage	$V_{F(TO)}$	$T_J = T_J \text{ maximum}$		0.47	V	
Forward slope resistance	r_t			20.68	mΩ	
Typical junction capacitance per leg	C_T	$V_R = 5\text{ V}_{DC}$, (test signal range 100 kHz to 1 MHz) 25 °C		183	pF	
Typical series inductance per leg	L_S	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 temperature range	$T_J^{(1)}$		- 55 to 150	°C
Maximum storage temperature range	T_{Stg}			
Maximum thermal resistance, junction to case per leg per device	R_{thJC}	DC operation See fig. 4	3.0	°C/W
			1.5	
Approximate weight			0.3	g
			0.01	oz.
Marking device		Case style D-PAK (similar to TO-252AA)	12CWQ10G	

Note

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



12CWQ10GPbF

Schottky Rectifier, 2 x 6 A Vishay High Power Products

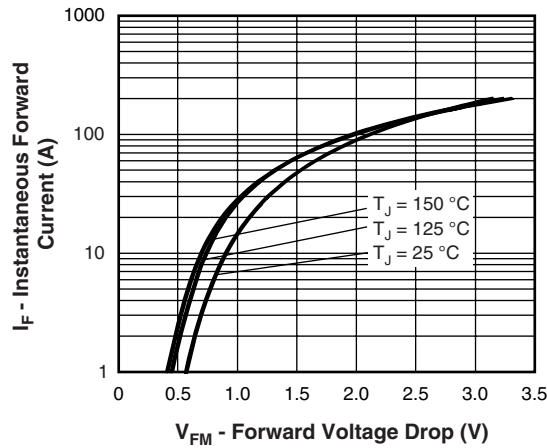


Fig. 1 - Maximum Forward Voltage Drop Characteristics (Per Leg)

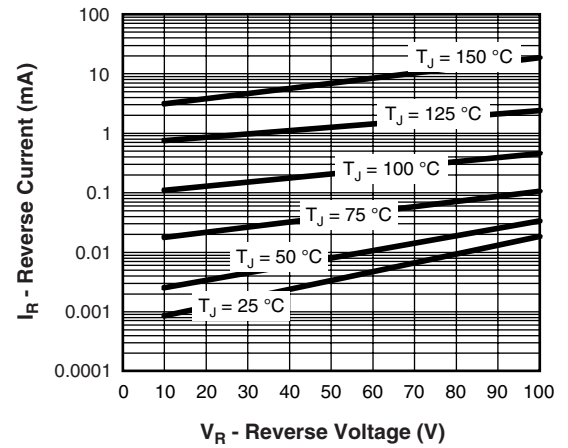


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage (Per Leg)

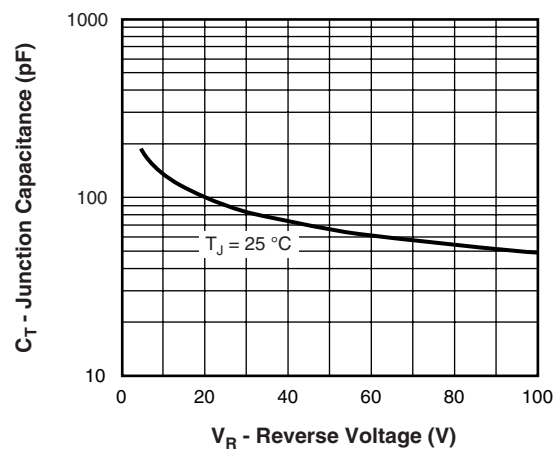


Fig. 3 - Typical Junction Capacitance vs. Reverse Voltage (Per Leg)

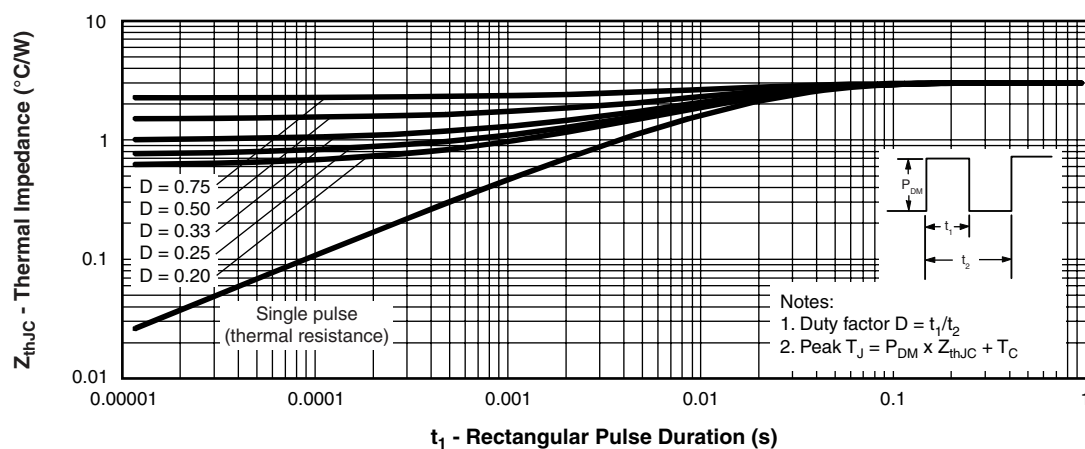


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics (Per Leg)

12CWQ10GPbF

Vishay High Power Products Schottky Rectifier, 2 x 6 A

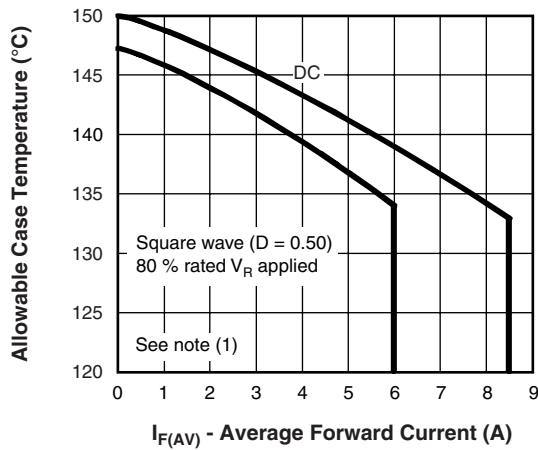


Fig. 5 - Maximum Allowable Case Temperature vs. Average Forward Current (Per Leg)

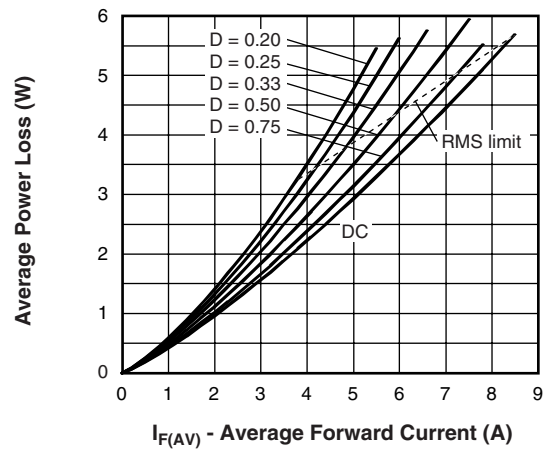


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

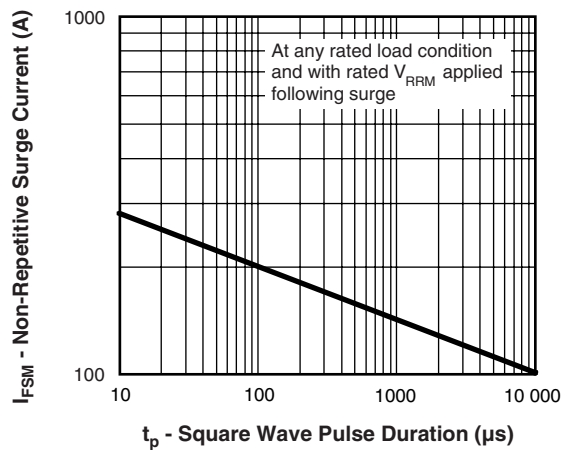


Fig. 7 - Maximum Non-Repetitive Surge Current (Per Leg)

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	12	C	W	Q	10	G	TRL	PbF
	1	2	3	4	5	6	7	8

- | | | |
|---|---|---|
| 1 | - | Current rating |
| 2 | - | C = Common cathode |
| 3 | - | Package:
W = D-PAK (TO-252AA) |
| 4 | - | Q = Schottky "Q" series |
| 5 | - | Voltage rating: code x 10 = V_{RRM} (10 = 100 V) |
| 6 | - | Schottky generation |
| 7 | - | <ul style="list-style-type: none">• None = Tube (75 pieces)• TR = Tape and reel• TRL = Tape and reel (left oriented)• TRR = Tape and reel (right oriented) |
| 8 | - | <ul style="list-style-type: none">• None = Standard production• PbF = Lead (Pb)-free |

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95016
Part marking information	http://www.vishay.com/doc?95059
Packaging information	http://www.vishay.com/doc?95033



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