

HEXFRED® Ultrafast Diodes, 100 A (New INT-A-PAK™ Power Modules)



New INT-A-PAK™

FEATURES

- Electrically isolated: DBC base plate
- 3500 V_{RMS} isolating voltage
- Standard JEDEC package
- Simplified mechanical designs, rapid assembly
- High surge capability
- Large creepage distances
- UL E78996 approved 
- Case style New INT-A-PAK
- Totally lead (Pb)-free
- Designed and qualified for industrial level


**RoHS
COMPLIANT**

PRODUCT SUMMARY	
$I_{F(AV)}$	100 A
V_{FM} (typical) at $I_C = 100$ A, 25 °C	2.5 V

MAJOR RATINGS AND CHARACTERISTICS			
SYMBOL	CHARACTERISTICS	VALUES	UNITS
$I_{F(AV)}$ rect		100	A
	T_C	88	°C
t_{rr}		200	ns
V_{RRM}		1200	V
T_J, T_{Stg}		- 40 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
VSKDU162/12PbF	12	1200	1250

FORWARD CONDUCTION					
PARAMETER	SYMBOL	TEST CONDITIONS	TYP.	MAX.	UNITS
Maximum average forward current at case temperature	$I_{F(AV)}$	Rectangular conduction, 50 % duty cycle	-	100	A
			-	88	°C
Forward voltage drop	V_{FM}	$I_F = 100$ A, $T_J = 25$ °C, $t_p = 400$ μs square wave	2.5	3.2	V
		$I_F = 160$ A, $T_J = 25$ °C, $t_p = 400$ μs square wave	2.9	3.9	
Reverse recovery time	t_{rr}	$I_F = 160$ A, $T_J = 25$ °C, - $di/dt = 200$ A/μs, $V_R = 200$ V	150	200	ns
Reverse recovery charge	Q_{rr}		2000	2400	nC
Reverse recovery current	I_{REC}		20	22	A
Maximum forward voltage drop	$dl_{(rec)M}/dt$		-	300	A/μs

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BLOCKING				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum peak reverse leakage current	I_{RRM}	$T_J = 150\text{ °C}$	30	mA
RMS insulation voltage	V_{INS}	50 Hz, circuit to base, all terminals shorted, $t = 1\text{ s}$	3500	V

THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction operating and storage temperature range	T_J, T_{Stg}		- 40 to 150	°C
Maximum thermal resistance, junction to case per junction	R_{thJC}	DC operation	0.18	K/W
Typical thermal resistance, case to heatsink	R_{thCS}	Mounting surface, flat, smooth and greased	0.05	
Mounting torque $\pm 10\%$	to heatsink busbar	A mounting compound is recommended and the torque should be rechecked after a period of 3 hours to allow the spread of the compound.	4 to 6	Nm
Approximate weight			200	g
			7.1	oz.
Case style			New INT-A-PAK	



HEXFRED® Ultrafast Diodes, 100 A Vishay High Power Products
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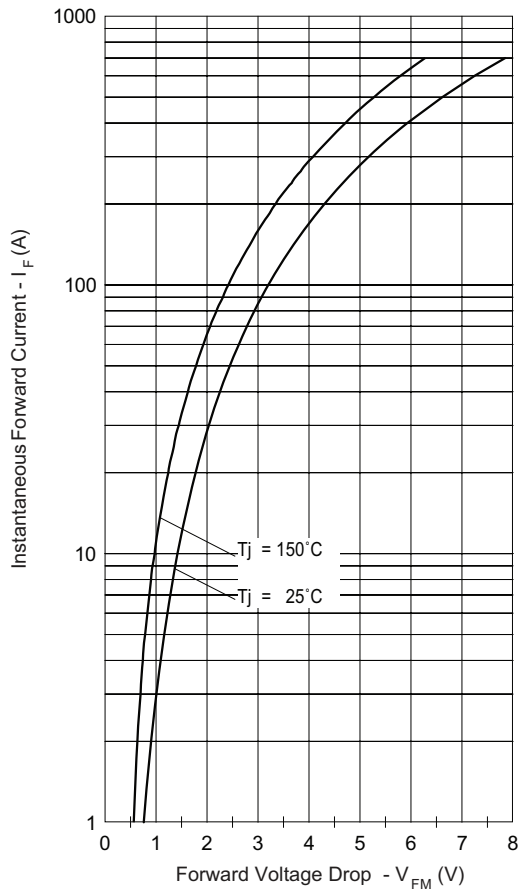


Fig. 1 - Maximum Forward Voltage Drop Characteristics

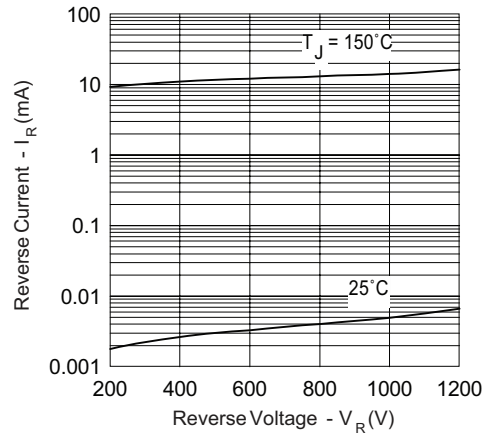


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

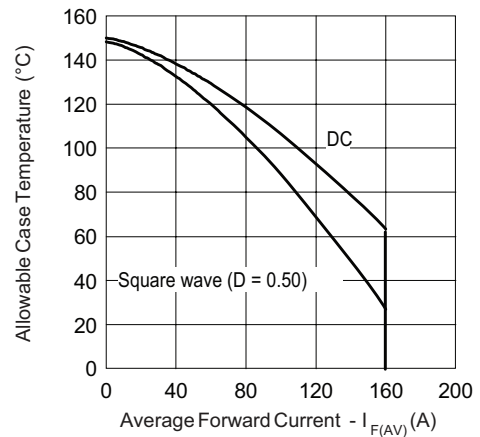


Fig. 3 - Maximum Allowable Case Temperature vs. Average Forward Current

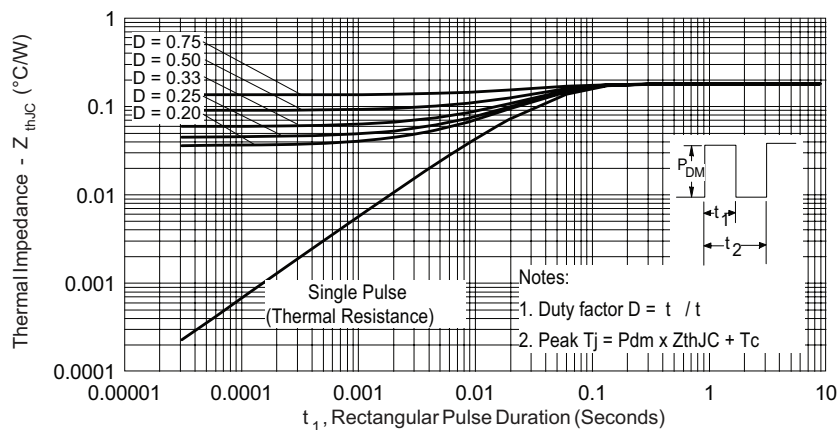


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

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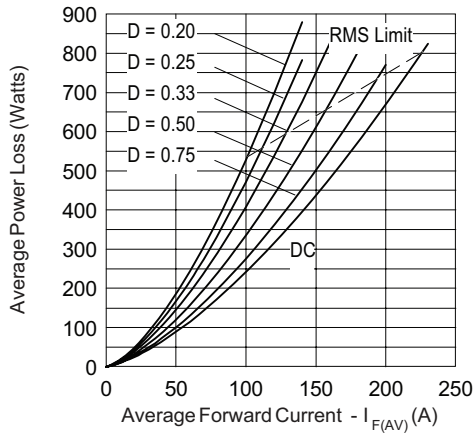


Fig. 5 - Forward Power Loss Characteristics

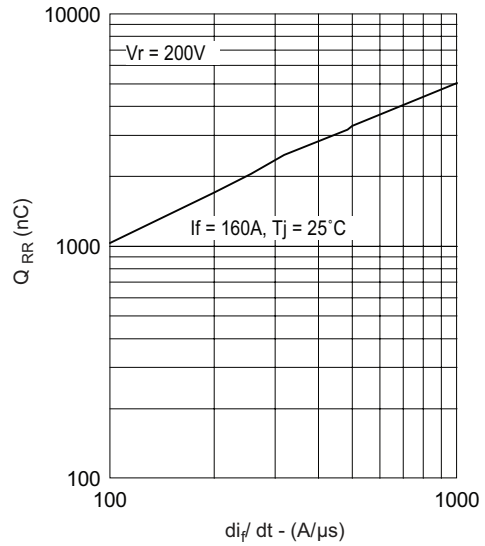


Fig. 7 - Typical Reverse Recovery Charge vs. di_F/dt (Per Leg)

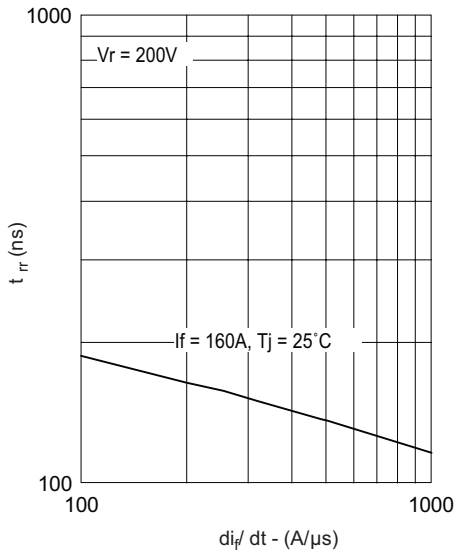


Fig. 6 - Typical Reverse Recovery Time vs. di_F/dt (Per Leg)

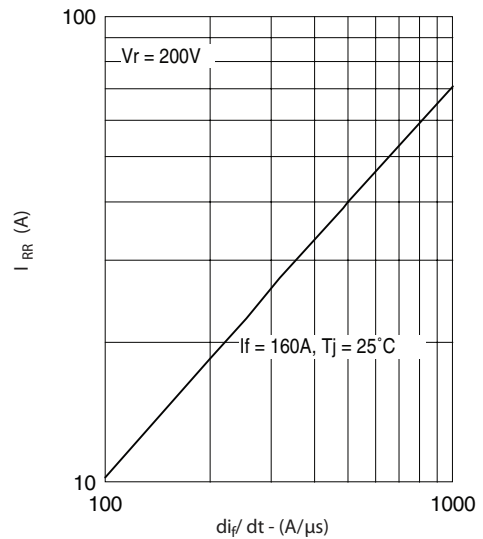


Fig. 8 - Typical Reverse Recovery Current vs. di_F/dt (Per Leg)

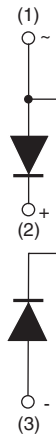


ORDERING INFORMATION TABLE

Device code	VS	K	DU	162	/	12	PbF
	①	②	③	④		⑤	⑥

- 1** - Vishay HPP
- 2** - K = New INT-A-PAK module
- 3** - DU = HEXFRED® ultrafast diode
- 4** - Current rating
- 5** - Voltage rating (12 = 1200 V)
- 6** - PbF = Lead (Pb)-free

CIRCUIT CONFIGURATION



LINKS TO RELATED DOCUMENTS

Dimensions

<http://www.vishay.com/doc?95254>



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