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

Pb-free
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	$dI_{(rec)M}/dt$		-	300	A/µs

BLOCKING				
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNITS**
Maximum peak reverse leakage current	I_{RRM}	T_J = 150 °C	30	mA
RMS insulation voltage	V_{INS}	50 Hz, circuit to base, all terminals shorted, t = 1 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 ± 10 % — to heatsink		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
Mounting torque ± 10 % — busbar				
Approximate weight			200	g
			7.1	oz.
Case style			New INT-A-PAK	

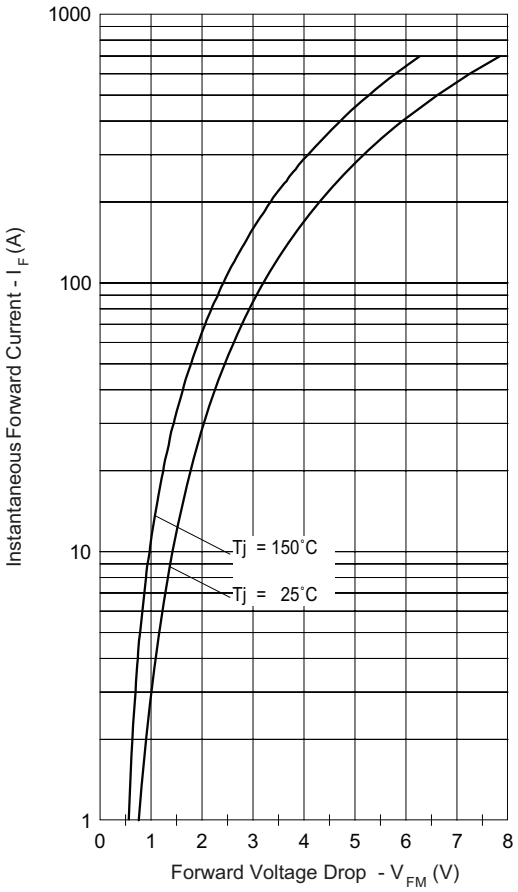


Fig. 1 - Maximum Forward Voltage Drop Characteristics

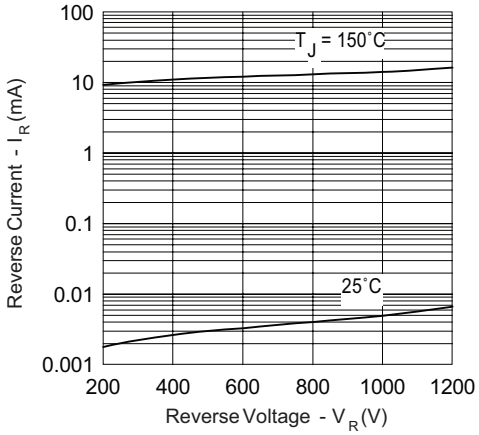


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

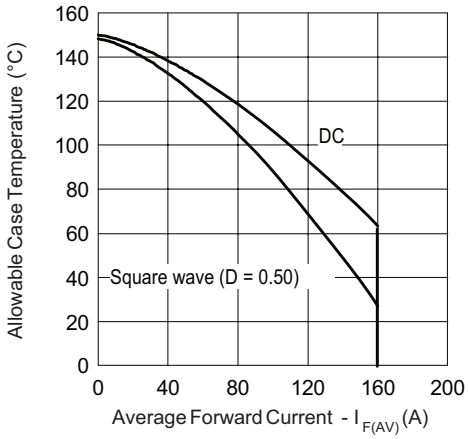


Fig. 3 - Maximum Allowable Case Temperature vs. Average Forward Current

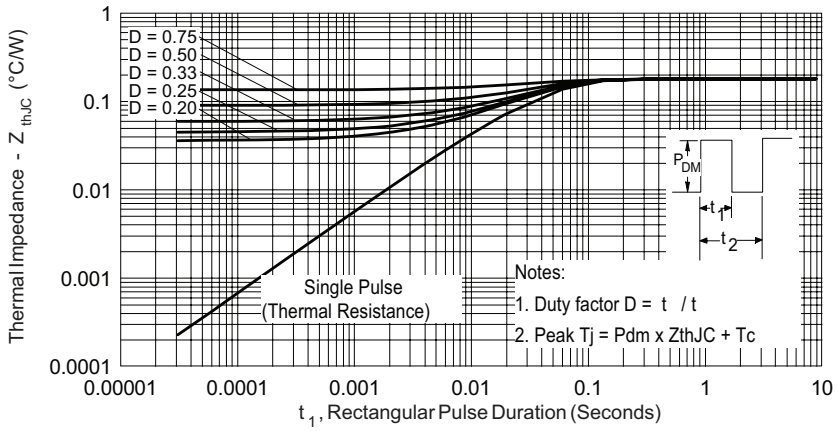


Fig. 4 - Maximum Thermal Impedance Z_{thJC} Characteristics

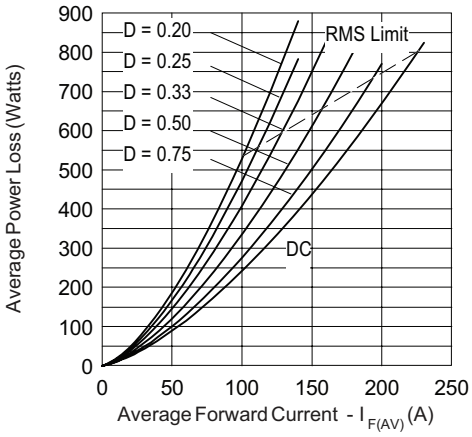


Fig. 5 - Forward Power Loss Characteristics

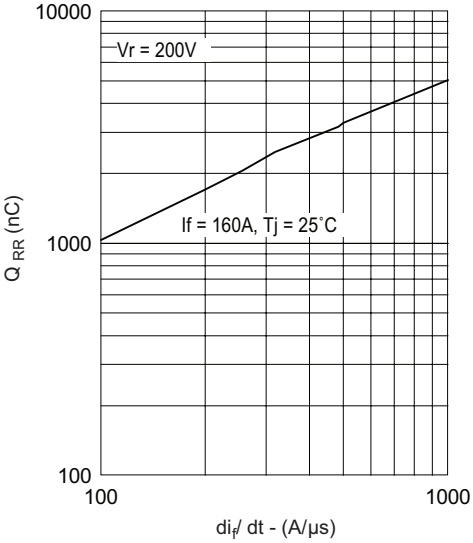


Fig. 7 - Typical Reverse Recovery Charge vs.dI$_F$/dt
(Per Leg)

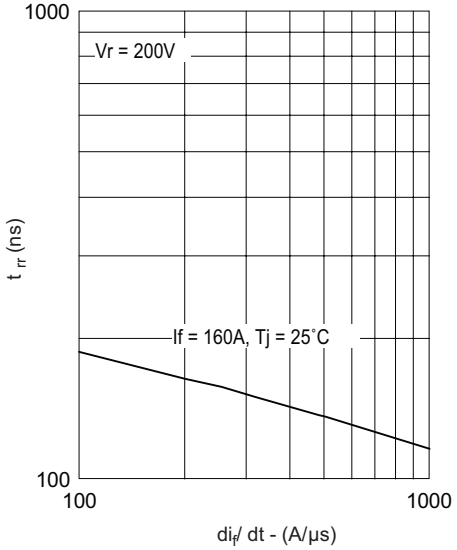


Fig. 6 - Typical Reverse Recovery Time vs. dI$_F$/dt
(Per Leg)

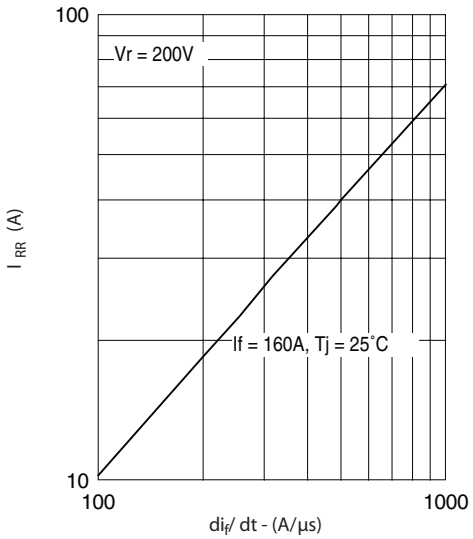


Fig. 8 - Typical Reverse Recovery Current vs. dI$_F$/dt
(Per Leg)

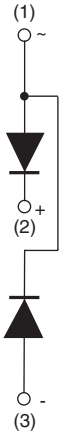
ORDERING INFORMATION TABLE

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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All product specifications and data are subject to change without notice.

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