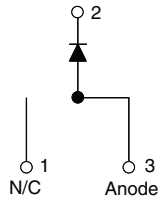


HEXFRED® Ultrafast Soft Recovery Diode, 8 A


D-PAK

FEATURES

- Ultrafast recovery time
- Ultrasoft recovery
- Very low I_{RRM}
- Very low Q_{rr}
- Guaranteed avalanche
- Specified at operating conditions
- Lead (Pb)-free
- Designed and qualified for Q101 level


RoHS*
COMPLIANT

BENEFITS

- Reduced RFI and EMI
- Reduced power loss in diode and switching transistor
- Higher frequency operation
- Reduced snubbing
- Reduced parts count

DESCRIPTION

These diodes are optimized to reduce losses and EMI/RFI in high frequency power conditioning systems. The softness of the recovery eliminates the need for a snubber in most applications. These devices are ideally suited for freewheeling, flyback, power converters, motor drives, and other applications where high speed and reduced switching losses are design requirements.

PRODUCT SUMMARY

V_R	600 V
V_F at 8 A at 25 °C	1.7 V
$I_{F(AV)}$	8 A
t_{rr} (typical)	18 ns
T_J (maximum)	150 °C

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Cathode to anode voltage	V_{RRM}		600	V
Maximum continuous forward current	I_F	$T_C = 100\text{ °C}$	8	A
Single pulse forward current	I_{FSM}		60	
Peak repetitive forward current	I_{FRM}		24	
Maximum power dissipation	P_D	$T_C = 100\text{ °C}$	14	W
Operating junction and storage temperature range	T_J, T_{Stg}		- 55 to + 150	°C

ELECTRICAL SPECIFICATIONS ($T_J = 25\text{ °C}$ unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Breakdown voltage, blocking voltage	V_{BR}, V_R	$I_R = 100\text{ }\mu\text{A}$	600	-	-	V
Forward voltage	V_F	$I_F = 8\text{ A}$	-	1.4	1.7	
		$I_F = 16\text{ A}$	-	1.7	2.1	
		$I_F = 8\text{ A}, T_J = 125\text{ °C}$	-	1.4	1.7	
Maximum reverse leakage current	I_R	$V_R = V_R$ rated	-	0.3	5.0	μA
		$T_J = 125\text{ °C}, V_R = 0.8 \times V_R$ rated	-	100	500	
Junction capacitance	C_T	$V_R = 200\text{ V}$	-	10	25	pF
Series inductance	L_S	Measured lead to lead 5 mm from package body	-	8.0	-	nH

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

DYNAMIC RECOVERY CHARACTERISTICS ($T_J = 25\text{ °C}$ unless otherwise specified)						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Reverse recovery time	t_{rr}	$I_F = 1.0\text{ A}$, $di_F/dt = 200\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$	-	18	-	ns
		$T_J = 25\text{ °C}$	-	37	55	
		$T_J = 125\text{ °C}$	-	55	90	
Peak recovery current	I_{RRM}	$T_J = 25\text{ °C}$	-	3.5	5.0	A
		$T_J = 125\text{ °C}$	-	4.5	8.0	
Reverse recovery charge	Q_{rr}	$T_J = 25\text{ °C}$	-	65	138	nC
		$T_J = 125\text{ °C}$	-	124	360	
Rate of fall of recovery current	$di_{(rec)M}/dt$	$T_J = 25\text{ °C}$	-	240	-	A/ μs
		$T_J = 125\text{ °C}$	-	210	-	

THERMAL - MECHANICAL SPECIFICATIONS						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Maximum junction and storage temperature range	T_J , T_{Stg}		- 55	-	150	°C
Lead temperature	T_{lead}		-	-	300	
Thermal resistance, junction to case	R_{thJC}		-	-	3.5	°C/W
Thermal resistance, junction to ambient	R_{thJA}	Typical socket mount	-	-	80	
Weight			-	2.0	-	g
			-	0.07	-	oz.
Marking device		Case style D-PAK	HFA08SD60S			

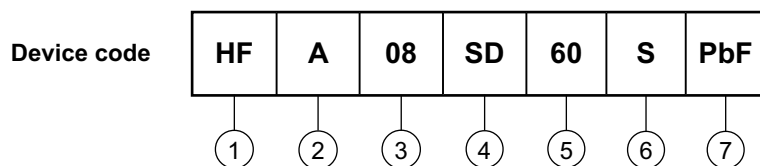
HFA08SD60SPbF

Vishay High Power Products

HEXFRED®
Ultrafast Soft Recovery Diode, 8 A

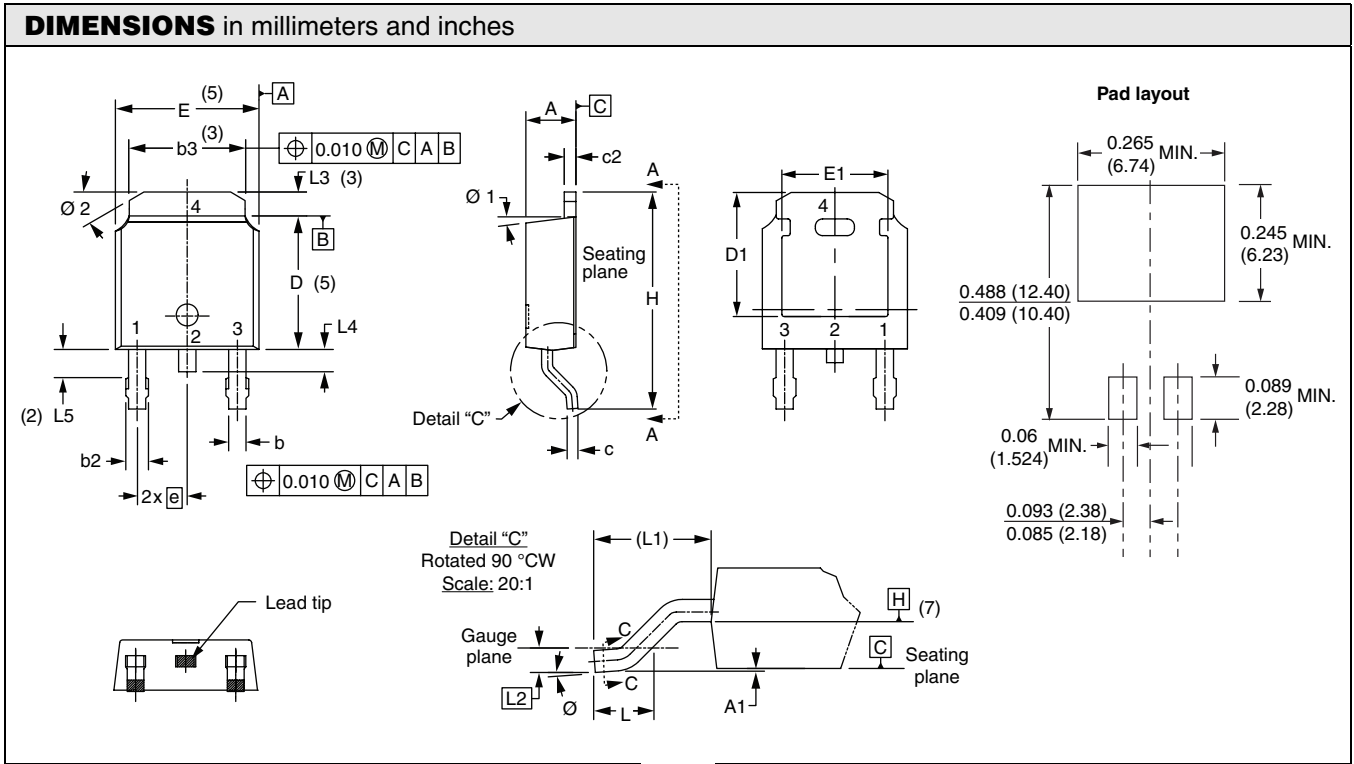


ORDERING INFORMATION TABLE



- 1** - HEXFRED® family
 - 2** - Electron irradiated
 - 3** - Current rating (08 = 8 A)
 - 4** - D-PAK
 - 5** - Voltage rating (60 = 600 V)
 - 6** - Suffix
 - 8** - • None = Standard production
• PbF = Lead (Pb)-free
- S = D²PAK/D-PAK
TR = Tape and reel
TRL = Tape and reel left
TRR = Tape and reel right

D-PAK (TO-252AA)



SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	2.18	2.39	0.086	0.094	
A1	-	0.13	-	0.005	
b	0.64	0.89	0.025	0.035	
b2	0.76	1.14	0.030	0.045	
b3	4.95	5.46	0.195	0.215	3
c	0.46	0.61	0.018	0.024	
c2	0.46	0.89	0.018	0.035	
D	5.97	6.22	0.235	0.245	5
D1	5.21	-	0.205	-	3
E	6.35	6.73	0.250	0.265	5
E1	4.32	-	0.170	-	3

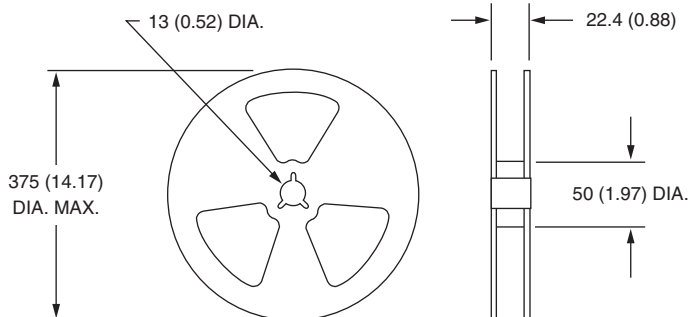
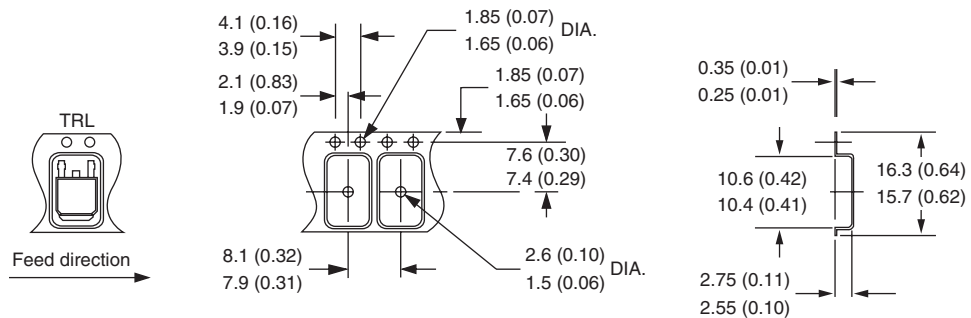
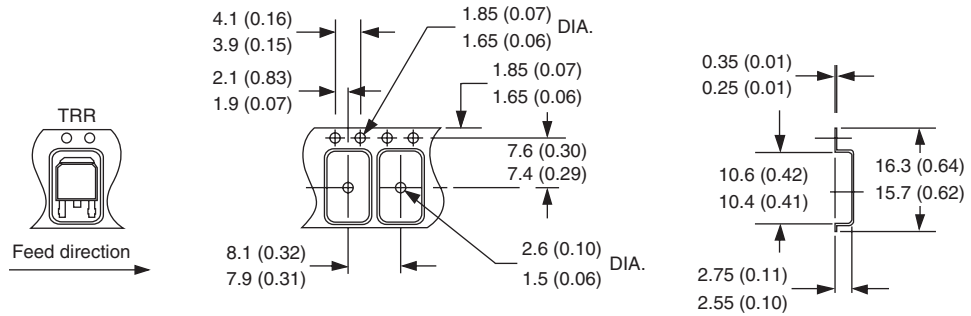
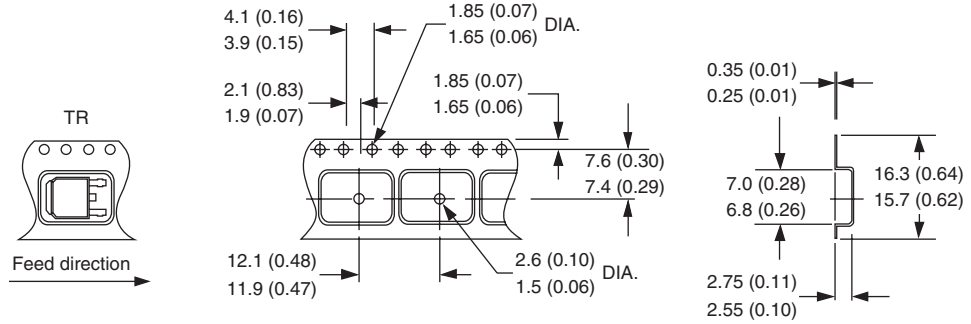
SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
e	2.29 BSC		0.090 BSC		
H	9.40	10.41	0.370	0.410	
L	1.40	1.78	0.055	0.070	
L1	2.74 BSC		0.108 REF.		
L2	0.51 BSC		0.020 BSC		
L3	0.89	1.27	0.035	0.050	3
L4	-	1.02	-	0.040	
L5	1.14	1.52	0.045	0.060	2
Ø	0°	10°	0°	10°	
Ø1	0°	15°	0°	15°	
Ø2	25°	35°	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

D-PAK

TAPE AND REEL INFORMATION in millimeters (inches)



D-PAK tape and reel

When ordering, indicate the part number, part orientation, and the quantity. Quantities are in multiples of 2000 pieces per reel for TR and multiples of 3000 pieces per reel for both TRL and TRR.