

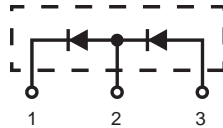
HiPerFRED™ Epitaxial Diode

$$I_{FAV} = 30 \text{ A}$$

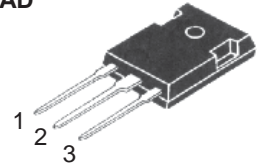
$$V_{RRM} = 1200 \text{ V}^{\textcircled{1}}$$

$$t_{rr} = 30 \text{ ns}$$

$V_{RRM}^{\textcircled{1}}$	V_{RRM}	Type
V	V	
1200	600	DSEE30-12A



TO-247 AD



Symbol	Conditions	Maximum Ratings	
I_{FRMS}		60	A
$I_{FAVM}^{\textcircled{1}}$	$T_C = 90^\circ\text{C}$; rectangular, $d = 0.5$	30	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; $t_p = 10 \text{ ms}$ (50 Hz), sine	200	A
E_{AS}	$T_{VJ} = 25^\circ\text{C}$; non-repetitive $I_{AS} = 1.3 \text{ A}$; $L = 180 \mu\text{H}$	0.2	mJ
I_{AR}	$V_A = 1.5 \cdot V_R$ typ.; $f = 10 \text{ kHz}$; repetitive	0.1	A
T_{VJ}		-55...+175	$^\circ\text{C}$
T_{VJM}		175	$^\circ\text{C}$
T_{stg}		-55...+150	$^\circ\text{C}$
T_L	1.6 mm (0.063 in) from case for 10 s	260	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}$	165	W
M_d	Mounting Torque	0.9/6	Nm/lb.in.
Weight	typical	2	g

Features

- Planar passivated chips
- Very short recovery time
- Extremely low switching losses
- Low I_{RM} -values
- Soft recovery behaviour
- Epoxy meets UL 94V-0

Applications

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode in converters and motor control circuits
- Rectifiers in switch mode power supplies (SMPS)
- Inductive heating
- Uninterruptible power supplies (UPS)
- Ultrasonic cleaners and welders

Advantages

- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low I_{RM} reduces:
 - Power dissipation within the diode
 - Turn-on loss in the commutating switch

Notes

- Please see DSEP 30-06A Data Sheet for characteristic curves.

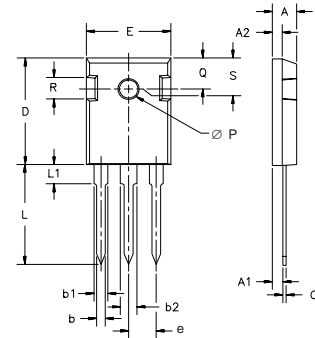
Symbol	Conditions	Characteristic Values	
		typ.	max.
$I_R^{\textcircled{1}\textcircled{2}}$	$T_{VJ} = 25^\circ\text{C}$ $V_R = V_{RRM}$ $T_{VJ} = 150^\circ\text{C}$ $V_R = V_{RRM}$	200	μA
		2	mA
$V_F^{\textcircled{3}}$	$I_F = 30 \text{ A}$; $T_{VJ} = 125^\circ\text{C}$ $T_{VJ} = 25^\circ\text{C}$	1.75	V
		2.5	V
R_{thJC}		0.9	K/W
R_{thCH}	0.25		K/W
t_{rr}	$I_F = 1 \text{ A}$; $-di/dt = 200 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$	30	ns
I_{RM}	$V_R = 100 \text{ V}$; $I_F = 50 \text{ A}$; $-di_F/dt = 100 \text{ A}/\mu\text{s}$ $T_{VJ} = 100^\circ\text{C}$	4	A

 Notes: Data given for $T_{VJ} = 25^\circ\text{C}$ and per diode unless otherwise specified

 $\textcircled{1}$ Diodes connected in series

 $\textcircled{2}$ Pulse test: pulse Width = 5 ms, Duty Cycle < 2.0 %

 $\textcircled{3}$ Pulse test: pulse Width = 300 μs , Duty Cycle < 2.0 %

TO-247 AD Outline


Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b ₁	1.65	2.13	.065	.084
b ₂	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
$\varnothing P$	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15	BSC	.242	BSC

IXYS reserves the right to change limits, test conditions, and dimensions.

IXYS MOSFETS and IGBTs are covered by one or more of the following U.S. patents:

4,835,592	4,881,106	5,017,508	5,049,961	5,187,117	5,486,715	6,306,728B1
4,850,072	4,931,844	5,034,796	5,063,307	5,237,481	5,381,025	