

HiPerFRED™ Epitaxial Diode

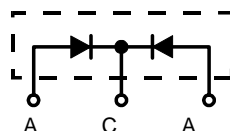
with common cathode and soft recovery

$$I_{FAV} = 2 \times 15 \text{ A}$$

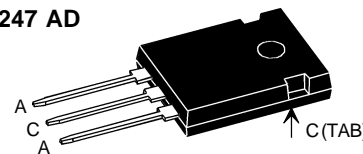
$$V_{RRM} = 400 \text{ V}$$

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

V_{RSM}	V_{RRM}	Type
V	V	
400	400	DSEC 30-04A



TO-247 AD



A = Anode, C = Cathode, TAB = Cathode

Symbol	Conditions	Maximum Ratings	
I_{FRMS}		50	A
I_{FAVM}	$T_C = 145^\circ\text{C}$; rectangular, $d = 0.5$	15	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; $t_p = 10 \text{ ms}$ (50 Hz), sine	tbd	A
E_{AS}	$T_{VJ} = 25^\circ\text{C}$; non-repetitive $I_{AS} = \text{tbd A}$; $L = \text{tbd } \mu\text{H}$	tbd	mJ
I_{AR}	$V_A = 1.5 \cdot V_R \text{ typ.}$; $f = 10 \text{ kHz}$; repetitive	tbd	A
T_{VJ}		-55...+175	$^\circ\text{C}$
T_{VJM}		175	$^\circ\text{C}$
T_{stg}		-55...+150	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}$	95	W
M_d	mounting torque	0.8...1.2	Nm
Weight	typical	6	g

Features

- International standard package
- 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

Symbol	Conditions	Characteristic Values	
		typ.	max.
I_R ①	$T_{VJ} = 25^\circ\text{C}$; $V_R = V_{RRM}$ $T_{VJ} = 150^\circ\text{C}$; $V_R = V_{RRM}$	100	μA
		0.5	mA
V_F ②	$I_F = 15 \text{ A}$; $T_{VJ} = 150^\circ\text{C}$ $T_{VJ} = 25^\circ\text{C}$	1.06	V
		1.47	V
R_{thJC}		1.6	K/W
R_{thCH}		0.25	K/W
t_{rr}	$I_F = 1 \text{ A}$; $-di/dt = 100 \text{ A}/\mu\text{s}$; $V_R = 30 \text{ V}$; $T_{VJ} = 25^\circ\text{C}$	30	ns
I_{RM}	$V_R = 100 \text{ V}$; $I_F = 25 \text{ A}$; $-di_F/dt = 100 \text{ A}/\mu\text{s}$ $T_{VJ} = 100^\circ\text{C}$	5.0	6.3 A

Pulse test: ① Pulse Width = 5 ms, Duty Cycle < 2.0 %

 ② Pulse Width = 300 μs , Duty Cycle < 2.0 %

Data according to IEC 60747 and per diode unless otherwise specified

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