

HiPerDynFRED[™] Epitaxial Diode with soft recovery (Electrically Isolated Back Surface)

Preliminary Data

V _{RSM} V	V _{RRM} V	Туре		
1200	1200	DSEP 15-12CR		





= 15 A

= 20 ns

 $V_{\rm RRM} = 1200 \, \rm V$

A = Anode, C = Cathode

* Patent pending

Symbol	Conditions	Maximum Ratings	
I _{FRMS}		50	A
IFAVM	$T_c = 130^{\circ}C$; rectangular, d = 0.5	15	A
I _{FRM}	$t_{\rm P}$ < 10 $\mu s;$ rep. rating, pulse width limited by $T_{_{VJM}}$	tbd	A
I _{FSM}	$T_{vJ} = 45^{\circ}C; t_{p} = 10 \text{ ms} (50 \text{ Hz}), \text{ sine}$	110	A
E _{AS}	$T_{VJ} = 25^{\circ}C$; non-repetitive $I_{AS} = 1.0 \text{ A}$; L = 180 μ H	0.1	mJ
I _{AR}	$V_A = 1.25 \cdot V_R$ typ.; f = 10 kHz; repetitive	0.1	A
T _{vj}	-5	5+175	°C
T _{VJM}		175	°C
T _{stg}	-5	5+150	°C
P _{tot}	$T_c = 25^{\circ}C$	150	W
VISOL	50/60 Hz RMS; $I_{ISOL} \leq 1 \text{ mA}$	2500	٧~
F _c	mounting force with clip	20120	N
Weight	typical	6	g

Symbol	Conditions	Characteristic Values		
		typ.	max.	
I _R ①	$T_{VJ} = 25^{\circ}C$ $V_{R} = V_{RRM}$		100	μA
	$T_{VJ} = 150^{\circ}C V_{R} = V_{RRM}$		0.5	mA
V _F ②	I _F = 15 A; T _{VJ} = 150°C		2.67	V
	$T_{VJ} = 25^{\circ}C$		4.04	V
R _{thJC}			1	K/W
R _{thCH}	with heatsink compound	0.25		K/W
t _{rr}	$I_F = 1 \text{ A}; -di/dt = 200 \text{ A}/\mu\text{s};$ $V_R = 30 \text{ V}; \text{ T}_{VJ} = 25^{\circ}\text{C}$	20		ns
I _{RM}	$V_{R} = 100 \text{ V}; \ I_{F} = 25 \text{ A}; -di_{F}/dt = 100 \text{ A}/\mu\text{s}$ $T_{VJ} = 100^{\circ}\text{C}$	4.0	4.9	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.

Features

- Silicon chip on Direct-Copper-Bond substrate
- High power dissipation
- Isolated mounting surface
- 2500V electrical isolation
- Low cathode to tab capacitance (<25pF)
- 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
- Isolated and UL registered E153432

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

Dimensions see outlines.pdf