

HiPerFRED™ Epitaxial Diode

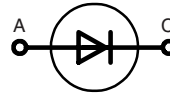
with soft recovery

$$I_{FAV} = 40 \text{ A}$$

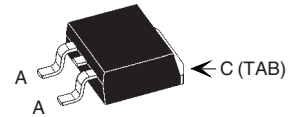
$$V_{RRM} = 300 \text{ V}$$

$$t_{rr} = 35 \text{ ns}$$

V_{RSM}	V_{RRM}	Type
V	V	
300	300	DSEP 40-03AS



TO-263



A = Anode, C = Cathode, TAB = Cathode

Symbol	Conditions	Maximum Ratings	
I_{FRMS}		35	A
I_{FAVM}	rect., $d = 0.5$; $T_C = 120^\circ\text{C}$	40	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$; $t_p = 10 \text{ ms}$ (50 Hz), sine	300	A
E_{AS}	$T_{VJ} = 25^\circ\text{C}$; non-repetitive $I_{AS} = 9 \text{ A}$; $L = 100 \mu\text{H}$	4	mJ
I_{AR}	$V_A = 1.5 \cdot V_R$ typ.; $f = 10 \text{ kHz}$; repetitive	0.9	A
T_{VJ}		-40...+175	$^\circ\text{C}$
T_{VJM}		175	$^\circ\text{C}$
T_{stg}		-40...+150	$^\circ\text{C}$
P_{tot}	$T_C = 25^\circ\text{C}$	175	W
Weight	typical	2	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 max. Values	
I_R ①	$V_R = V_{RRM}$; $T_{VJ} = 25^\circ\text{C}$	1	μA
	$V_R = V_{RRM}$; $T_{VJ} = 150^\circ\text{C}$	100	μA
V_F ②	$I_F = 40 \text{ A}$; $T_{VJ} = 150^\circ\text{C}$	1.11	V
	$T_{VJ} = 25^\circ\text{C}$	1.42	V
R_{thJC}		0.85	K/W
t_{rr} typ.	$V_R = 100 \text{ V}$; $I_F = 40 \text{ A}$; $-di_f/dt = 200 \text{ A}/\mu\text{s}$; $T_{VJ} = 25^\circ\text{C}$	35	ns
I_{RM} typ.		3.5	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.

Dimensions see Outlines.pdf