

preliminary

HiPerFRED

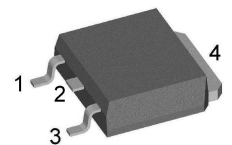
V_{RRM}	=	600 V
I_{FAV}	=	6 A
t_{rr}	=	15 ns

High Performance Fast Recovery Diode
 Low Loss and Soft Recovery
 Single Diode

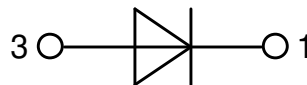
Part number

DSEP6-06BS

Marking on Product: P6QGUI



Backside: cathode



Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low I_{rm} -values
- Very soft recovery behaviour
- 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

Applications:

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)

Package: TO-252 (DPak)

- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

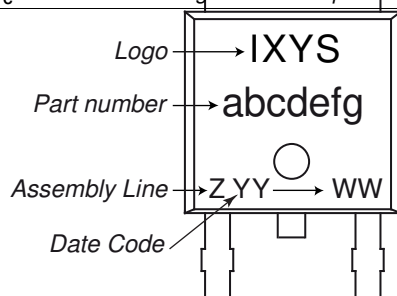
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Fast Diode				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V _{RSM}	max. non-repetitive reverse blocking voltage	T _{VJ} = 25°C				600	V
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				600	V
I _R	reverse current, drain current	V _R = 600 V	T _{VJ} = 25°C			50	μA
		V _R = 600 V	T _{VJ} = 150°C			0.2	mA
V _F	forward voltage drop	I _F = 6 A	T _{VJ} = 25°C			2.66	V
		I _F = 12 A				3.30	V
		I _F = 6 A	T _{VJ} = 150°C			1.77	V
		I _F = 12 A				2.29	V
I _{FAV}	average forward current	T _C = 140°C rectangular d = 0.5	T _{VJ} = 175°C			6	A
V _{F0}	threshold voltage	} for power loss calculation only		T _{VJ} = 175°C		1.13	V
r _F	slope resistance					76	mΩ
R _{thJC}	thermal resistance junction to case					2.8	K/W
R _{thCH}	thermal resistance case to heatsink				0.50		K/W
P _{tot}	total power dissipation	T _C = 25°C				55	W
I _{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine; V _R = 0 V		T _{VJ} = 45°C		40	A
C _J	junction capacitance	V _R = 400 V f = 1 MHz		T _{VJ} = 25°C	5		pF
I _{RM}	max. reverse recovery current	} I _F = 6 A; V _R = 300 V -di _F /dt = 200 A/μs		T _{VJ} = 25 °C	1.5		A
t _{rr}	reverse recovery time			T _{VJ} = 100 °C	3		A
				T _{VJ} = 25 °C	15		ns
				T _{VJ} = 100 °C	60		ns

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Package TO-252 (DPak)			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			20	A
T_{VJ}	virtual junction temperature		-55		175	°C
T_{op}	operation temperature		-55		150	°C
T_{stg}	storage temperature		-55		150	°C
Weight	Product Marking			0.3		g
F_c	mounting force with clip		20		60	N



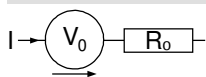
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSEP6-06BS-TRL	P6QGUI	Tape & Reel	2500	502162
Alternative	DSEP6-06BS-TUB	P6QGUI	Tube	70	525000

Similar Part	Package	Voltage class
DSEP6-06AS	TO-252AA (DPak)	600

Equivalent Circuits for Simulation

* on die level

 $T_{VJ} = 175^{\circ}\text{C}$

		Fast Diode	
$V_{0\max}$	threshold voltage	1.13	V
$R_{0\max}$	slope resistance *	73	mΩ

Recommended
min. foot print

