

HiPerFRED

DSEP6-06BS

preliminary

 $V_{RRM} = 600 V$

 $I_{FAV} = 6A$

 $t_{rr} = 15 \, \text{ns}$

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
 Vary about reasons times
- Very short recovery time
- Improved thermal behaviour
- Very low Irm-values
- Very soft recovery behaviour
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low Irm 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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IXYS reserves the right to change limits, conditions and dimensions.

Data according to IEC 60747and per semiconductor unless otherwise specified

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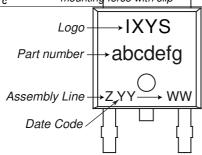
Fast Dio	de				Ratings	S	
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V _{RSM}	max. non-repetitive reverse blockii	ng voltage	$T_{VJ} = 25^{\circ}C$			600	V
V _{RRM}	max. repetitive reverse blocking vo	oltage	$T_{VJ} = 25^{\circ}C$			600	V
IR	reverse current, drain current	$V_R = 600 \text{ V}$	$T_{VJ} = 25^{\circ}C$			50	μΑ
		$V_R = 600 \text{ V}$	$T_{VJ} = 150$ °C			0.2	mΑ
V _F	forward voltage drop	I _F = 6 A	$T_{VJ} = 25^{\circ}C$			2.66	V
		I _F = 12 A				3.30	٧
		I _F = 6 A	T _{VJ} = 150°C			1.77	٧
		$I_F = 12 A$				2.29	٧
I FAV	average forward current	T _C = 140°C	T _{vJ} = 175°C			6	Α
		rectangular d = 0.5					
V _{F0}	threshold voltage		T _{VJ} = 175°C			1.13	٧
\mathbf{r}_{F}	slope resistance	ss calculation only				76	mΩ
R _{thJC}	thermal resistance junction to case	;				2.8	K/W
R _{thCH}	thermal resistance case to heatsin	k			0.50		K/W
P _{tot}	total power dissipation		$T_C = 25^{\circ}C$			55	W
I _{FSM}	max. forward surge current	$t = 10 \text{ ms}$; (50 Hz), sine; $V_R = 0 \text{ V}$	$T_{VJ} = 45^{\circ}C$			40	Α
CJ	junction capacitance	$V_R = 400 \text{V}$ f = 1 MHz	$T_{VJ} = 25^{\circ}C$		5		pF
I _{RM}	max. reverse recovery current		$T_{VJ} = 25 ^{\circ}\text{C}$		1.5		Α
		$I_F = 6 \text{ A}; V_R = 300 \text{ V}$	$T_{VJ} = 100^{\circ}C$		3		Α
t _{rr}	reverse recovery time	$\begin{cases} I_F = 6 \text{ A}; V_R = 300 \text{ V} \\ -di_F /dt = 200 \text{ A}/\mu\text{s} \end{cases}$	$T_{VJ} = 25 ^{\circ}\text{C}$		15		ns
	J	1	$T_{VJ} = 100^{\circ}C$		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	Α
T _{vJ}	virtual junction temperature		-55	i	175	°C
Top	operation temperature		-55	;	150	°C
T _{stg}	storage temperature		-55	i	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

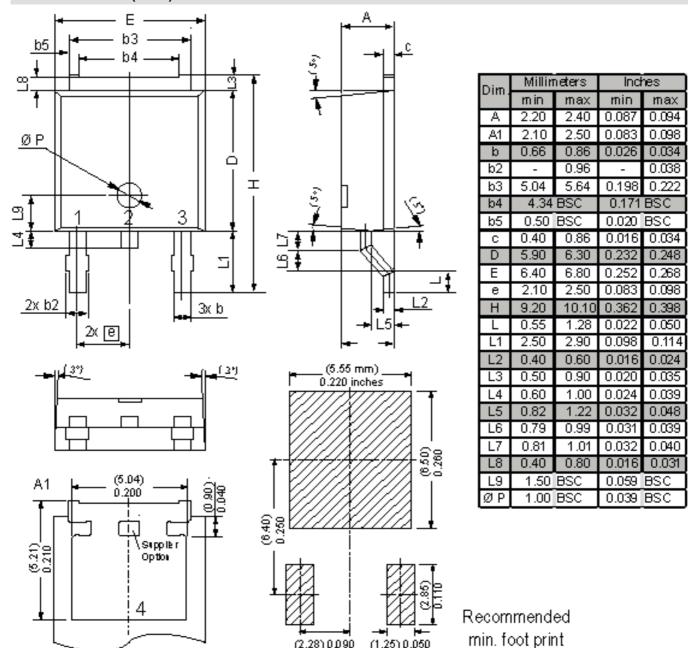
Similar Part	Package	Voltage class
DSEP6-06AS	TO-252AA (DPak)	600

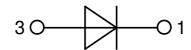
Equivalent Circuits for Simulation			* on die level	$T_{VJ} = 175 ^{\circ}\text{C}$
$I \rightarrow V_0$	R_0	Fast Diode		
V _{0 max}	threshold voltage	1.13		V
$R_{0 \text{ max}}$	slope resistance *	73		$m\Omega$



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Outlines TO-252 (DPak)





(2.28) 0 0 90

(1.25) 0.050