

Dual Power HiPerFET[™] Module

Phaseleg Configuration

Preliminary Data





= 100 V = 680 A

 $R_{DS(on)} = 1.8 \text{ m}\Omega$

Features

 V_{DSS}

D25

- HiPerFET ™ technology
- low $R_{\scriptscriptstyle DSon}$
- unclamped inductive switching (UIS) capability
- dv/dt ruggedness
- fast intrinsic reverse diode
- low gate charge
- thermistor
- for internal temperature measurement • package
 - low inductive current path
 - screw connection to high current main terminals
 - use of non interchangeable connectors for auxiliary terminals possible
 - Kelvin source terminals for easy drive
 - isolated DCB ceramic base plate

Applications

- converters with high power density for
- main and auxiliary AC drives of electric vehicles
- 4 quadrant DC drives
- power supplies

Symbol	Conditions	Maximum Rating	Maximum Ratings		
V _{DSS}	$T_{vJ} = 25^{\circ}C$ to $150^{\circ}C$		100	V	
V _{GS}			±20	V	
I _{D25} I _{D80}	$T_{c} = 25^{\circ}C$ $T_{c} = 80^{\circ}C$	1) 1)		A A	
I _{F25} I _{F80}	(diode) $T_c = 25^{\circ}C$ (diode) $T_c = 80^{\circ}C$	1) 1)	===	A A	

Symbol	Conditions	Characteristic Values (T _{v,i} = 25°C, unless otherwise specified)				
	(· V]	min.	typ.	max.		
R _{DSon}	$V_{GS} = 10 \text{ V}; I_{D} = I_{D80}$		1.8	2.2	mΩ	
V _{GSth}	$V_{_{DS}} = 20 \text{ V}; I_{_{D}} = 30 \text{ mA}$	2		4	V	
I _{DSS}	$V_{_{ m DS}} = 0.8 \bullet V_{_{ m DSS}}; V_{_{ m GS}} = 0 V; T_{_{ m VJ}} = 1$	25°C 25°C	1.5	1	mA mA	
I _{GSS}	$V_{_{GS}} = \pm 20 \text{ V}; V_{_{DS}} = 0 \text{ V}$			1	μA	
Q _g Q _{gs} Q _{gd}	$\begin{cases} V_{GS} = 10 \text{ V}; V_{DS} = 75 \text{ V}; I_{D} = I_{DBC} \end{cases}$)	1440 200 680		nC nC nC	
t _{d(on)} t _r t _{d(off)} t _f	$\begin{cases} V_{GS} = 10 \text{ V}; V_{DS} = 0.5 \bullet V_{DSS}; \\ I_{D} = I_{D80}; R_{G} = 0.47 \Omega \end{cases}$		150 250 400 200		ns ns ns ns	
V _F	(diode) $I_{F} = 650 \text{ A}; V_{GS} = 0 \text{ V}$		1.2	1.5	V	
t _{rr}	(diode) I _F = 650 A; -di/dt = 500 A/µ	is; $V_{DS} = \frac{1}{2} V_{DSS}$	300		ns	
R _{thJC} R _{thJS}	with heat transfer paste current limitation by external leads		0.12	0.08	K/W K/W	

1 additional current limitation by external leads

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

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Temperature Sensor NTC							
Symbol	Conditions	Ch min.	Characteristic Values nin. typ. max.				
R ₂₅ B _{25/100}	T = 25°C		2200 3560	Ω K			
Module							
Symbol	Conditions		Maximum Ratings				
T _{vj} T _{stg}			40+15 40+12	•			
V _{ISOL}	$I_{ISOL} \le 1 \text{ mA}; 50/60 \text{ Hz}$		360	0 V~			
M _d	Mounting torque (M6) Terminal connection torque (M6)	2	.25 - 2.7 4.5 - 5.				

 Symbol
 Conditions
 Characteristic Values min.
 Dimer

 Weight
 250
 g

Dimensions in mm (1 mm = 0.0394")



keyed twin plugs (UL758, style 1385, CSA class 5851, guide 460-1-1)

- Type ZY180L with wire length 350mm – for pins 4 (yellow wire) and 5 (red wire) – for pins 11 (yellow wire) and 10 (red wire)
- Type ZY180R with wire length 350mm – for pins 7 (yellow wire) and 6 (red wire)
- for pins 8 (yellow wire) and 9 (red wire)



