

IRF130

REPETITIVE AVALANCHE AND dv/dt RATED HEXFET[®] TRANSISTORS

Product Summary

Part Number	BVDSS	RDS(on)	ID
IRF130	100V	0.18 Ω	14A

Features:

- Repetitive Avalanche Ratings
- Dynamic dv/dt Rating
- Hermetically Sealed
- Simple Drive Requirements
- Ease of Paralleling

Absolute Maximum Ratings

	Parameter		Units
ID @ VGS = 0V, TC = 25°C	Continuous Drain Current	14	A
ID @ VGS = 0V, TC = 100°C	Continuous Drain Current	9.0	
IDM	Pulsed Drain Current ①	56	
PD @ TC = 25°C	Max. Power Dissipation	75	W
	Linear Derating Factor	0.60	W/°C
VGS	Gate-to-Source Voltage	± 20	V
EAS	Single Pulse Avalanche Energy ②	75	mJ
IAR	Avalanche Current ①	14	A
EAR	Repetitive Avalanche Energy ①	7.5	mJ
dv/dt	Peak Diode Recovery dv/dt ③	5.5	V/ns
TJ	Operating Junction	-55 to 150	°C
TSTG	Storage Temperature Range		
	Lead Temperature	300 (0.063 in. (1.6mm) from case for 10s)	
	Weight	11.5(typical)	g

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Electrical Characteristics @ T_j = 25°C (Unless Otherwise Specified)

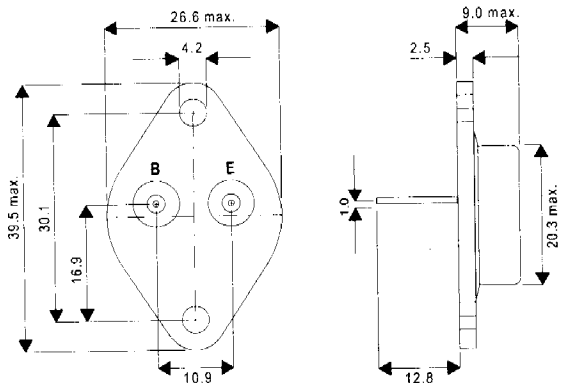
	Parameter	Min	Typ	Max	Units	Test Conditions
B _V D _{SS}	Drain-to-Source Breakdown Voltage	100	—	—	V	V _{GS} = 0V, I _D = 1.0mA
ΔB _V D _{SS} /ΔT _J	Temperature Coefficient of Breakdown Voltage	—	0.13	—	V/°C	Reference to 25°C, I _D = 1.0mA
R _{DS(on)}	Static Drain-to-Source On-State Resistance	—	—	0.18	Ω	V _{GS} = 10V, I _D = 9.0A④
		—	—	0.21		V _{GS} = 10V, I _D = 14A④
V _{GS(th)}	Gate Threshold Voltage	2.0	—	4.0	V	V _{DS} = V _{GS} , I _D = 250μA
g _{fs}	Forward Transconductance	4.6	—	—	S (S)	V _{DS} > 15V, I _{DS} = 9.0A④
I _{DSS}	Zero Gate Voltage Drain Current	—	—	25	μA	V _{DS} = 80V, V _{GS} = 0V
		—	—	250		V _{DS} = 80V V _{GS} = 0V, T _J = 125°C
I _{GSS}	Gate-to-Source Leakage Forward	—	—	100	nA	V _{GS} = 20V
I _{GSS}	Gate-to-Source Leakage Reverse	—	—	-100		V _{GS} = -20V
Q _g	Total Gate Charge	12	—	35	nC	V _{GS} = 10V, I _D = 14A
Q _{gs}	Gate-to-Source Charge	2.5	—	10		V _{DS} = 50V
Q _{gd}	Gate-to-Drain ('Miller') Charge	5.0	—	15		
t _{d(on)}	Turn-On Delay Time	—	—	35	ns	V _{DD} = 50V, I _D = 14A, R _G = 7.5Ω
t _r	Rise Time	—	—	80		
t _{d(off)}	Turn-Off Delay Time	—	—	60		
t _f	Fall Time	—	—	45		
L _S + L _D	Total Inductance	—	6.1	—	nH	Measured from drain lead (6mm/0.25in. from package) to source lead (6mm/0.25in. from package)
C _{iss}	Input Capacitance	—	650	—	pF	V _{GS} = 0V, V _{DS} = 25V f = 1.0MHz
C _{oss}	Output Capacitance	—	250	—		
C _{rss}	Reverse Transfer Capacitance	—	44	—		

Source-Drain Diode Ratings and Characteristics

	Parameter	Min	Typ	Max	Units	Test Conditions
I _S	Continuous Source Current (Body Diode)	—	—	14	A	
I _{SM}	Pulse Source Current (Body Diode) ①	—	—	56		
V _{SD}	Diode Forward Voltage	—	—	1.5	V	T _j = 25°C, I _S = 14A, V _{GS} = 0V ④
t _{rr}	Reverse Recovery Time	—	—	300	ns	T _j = 25°C, I _F = 14A, di/dt ≤ 100A/μs V _{DD} ≤ 50V ④
Q _{RR}	Reverse Recovery Charge	—	—	3.0		
t _{on}	Forward Turn-On Time	Intrinsic turn-on time is negligible. Turn-on speed is substantially controlled by L _S + L _D .				

Thermal Resistance

	Parameter	Min	Typ	Max	Units	Test Conditions
R _{thJC}	Junction to Case	—	—	1.67	°C/W	Typical socket mount
R _{thJA}	Junction to Ambient	—	—	30		



TO3 Package.