ECH8315

Power MOSFET –30V, 25mΩ, –7.5A, Single P-Channel

This Power MOSFET is produced using ON Semiconductor's trench technology, which is specifically designed to low on resistance. This devices is suitable for applications with low on resistance requirements.

Features

- Low On-Resistance
- 4V drive
- ESD Diode-Protected Gate
- Pb-Free, Halogen Free and RoHS compliance

Typical Applications

- Load Switch
- Protection Switch for Lithium-ion Battery
- Motor Driver

SPECIFICATIONS ABSOLUTE MAXIMUM RATING at Ta = 25°C (Note 1)

		• . /	
Parameter	Symbol	Value	Unit
Drain to Source Voltage	VDSS	-30	V
Gate to Source Voltage	VGSS	±20	V
Drain Current (DC)	ID	-7.5	А
Drain Current (Pulse) PW $\leq 10\mu$ s, duty cycle $\leq 1\%$	IDP	-40	A
Power Dissipation When mounted on ceramic substrate ($900mm^2 \times 0.8mm$)	PD	1.5	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55 to +150	°C

Note 1 : Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Value	Unit
Junction to Ambient When mounted on ceramic substrate (900mm ² \times 0.8mm)	$R_{\theta J A}$	83.3	°C/W



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VDSS	R _{DS} (on) Max	ID Max
-30V	25mΩ@ –10V	
	44mΩ@ –4.5V	-7.5A
	49mΩ@ –4V	

ELECTRICAL CONNECTION P-Channel



PACKING TYPE : TL

MARKING





ORDERING INFORMATION See detailed ordering and shipping information on page 5 of this data sheet.

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ELECTRICAL CHARACTERISTICS at $Ta = 25^{\circ}C$ (Note 2)

Parameter	Cumbal	Conditions		Value		
Parameter	Symbol	Conditions	min	typ	max	Unit
Drain to Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0V	-30			V
Zero-Gate Voltage Drain Current	IDSS	V _{DS} =-30V, V _{GS} =0V			-1	μA
Gate to Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Gate Threshold Voltage	VGS(th)	V _{DS} =-10V, I _D =-1mA	-1.2		-2.6	V
Forward Transconductance	9FS	V _{DS} =-10V, I _D =-3.5A	5	8.4		S
Static Drain to Source On-State Resistance	R _{DS} (on)1	ID=-3.5A, VGS=-10V		19	25	mΩ
	R _{DS} (on)2	ID=-2A, VGS=-4.5V		31	44	mΩ
	R _{DS} (on)3	ID=-2A, VGS=-4V		35	49	mΩ
Input Capacitance	Ciss			875		pF
Output Capacitance	Coss	V _{DS} =-10V, f=1MHz		200		pF
Reverse Transfer Capacitance	Crss			150		pF
Turn-ON Delay Time	t _d (on)			8.1		ns
Rise Time	tr			33		ns
Turn-OFF Delay Time	t _d (off)	See specified Test Circuit		92		ns
Fall Time	tf			60		ns
Total Gate Charge	Qg			18		nC
Gate to Source Charge	Qgs	V _{DS} =-15V, V _{GS} =-10V, I _D =-7.5A		2.1		nC
Gate to Drain "Miller" Charge	Qgd]		4.7		nC
Forward Diode Voltage	V _{SD}	IS=-7.5A, VGS=0V		-0.82	-1.2	V

Note 2 : Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

Switching Time Test Circuit





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PACKAGE DIMENSIONS

unit : mm

SOT-28FL / ECH8 CASE 318BF ISSUE O



ORDERING INFORMATION

Device	Marking	Package	Shipping (Qty / Packing)		
ECH8315-TL-H	JS	SOT-28FL / ECH8			
ECH8315-TL-W		(Pb-Free / Halogen Free)	3,000 / Tape & Reel		

† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D. http://www.onsemi.com/pub_link/Collateral/BRD8011-D.PDF

Note on usage : Since the ECH8315 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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