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	٧
Drain Current (DC)	ID	-7.5	Α
Drain Current (Pulse) PW ≤ 10µs, duty cycle ≤ 1%	IDP	-40	Α
Power Dissipation When mounted on ceramic substrate (900mm² × 0.8mm)	PD	1.5	V
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

THERMAL REGIOTATOE RATINGO						
Parameter	Symbol	Value	Unit			
Junction to Ambient When mounted on ceramic substrate (900mm ² × 0.8mm)	$R_{ heta JA}$	83.3	°C/W			

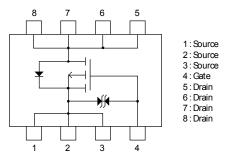


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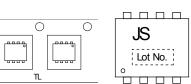
VDSS	R _{DS} (on) Max	ID Max
	25mΩ@ –10V	
-30V	44mΩ@ –4.5V	-7.5A
	49mΩ@ -4V	

ELECTRICAL CONNECTION P-Channel



PACKING TYPE : TL

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MARKING

ORDERING INFORMATION

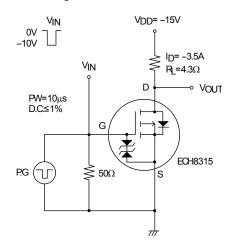
See detailed ordering and shipping information on page 5 of this data sheet.

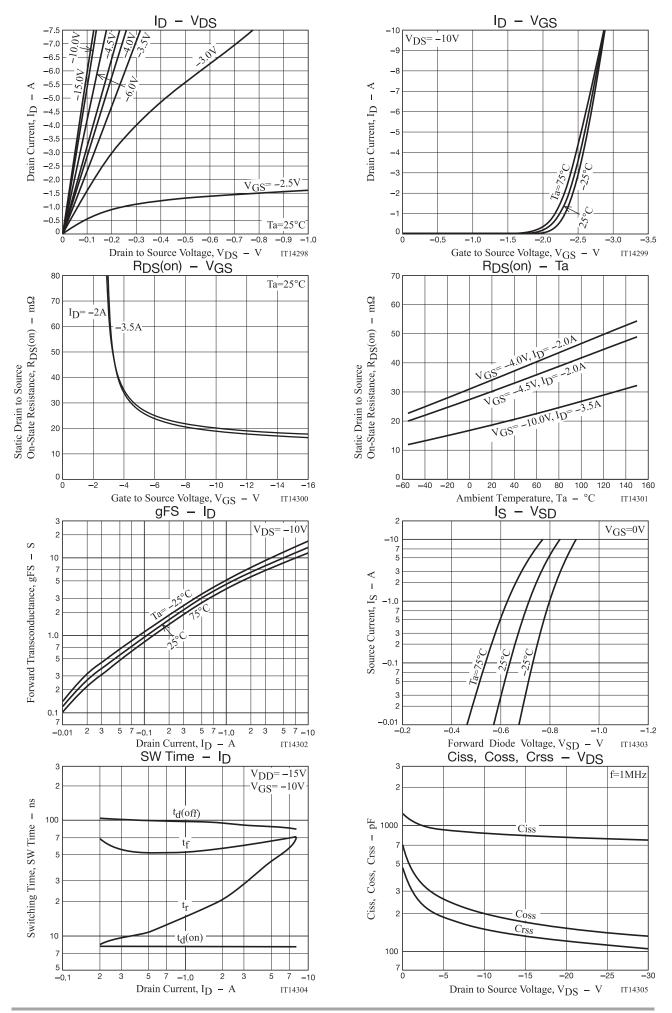
ELECTRICAL CHARACTERISTICS at Ta = 25°C (Note 2)

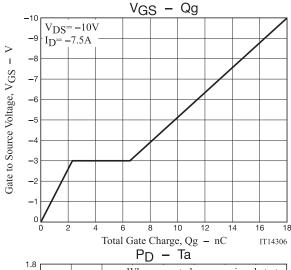
Parameter	Cumbal	Conditions	Value			Unit
Parameter	Parameter Symbol Conditions		min	typ	max	Offic
Drain to Source Breakdown Voltage	V(BR)DSS	I _D =-1mA, V _G S=0V	-30			V
Zero-Gate Voltage Drain Current	IDSS	V _{DS} =-30V, V _{GS} =0V			-1	μΑ
Gate to Source Leakage Current	IGSS	V _{GS} =±16V, V _{DS} =0V			±10	μΑ
Gate Threshold Voltage	VGS(th)	V _{DS} =-10V, I _D =-1mA	-1.2		-2.6	V
Forward Transconductance	gFS	V _{DS} =-10V, I _D =-3.5A	5	8.4		S
	R _{DS} (on)1	I _D =-3.5A, V _G S=-10V		19	25	mΩ
Static Drain to Source On-State Resistance	R _{DS} (on)2	I _D =-2A, V _G S=-4.5V		31	44	mΩ
Resistance	R _{DS} (on)3	I _D =-2A, V _G S=-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	Con annuitied Took Circuit		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}	I _S =-7.5A, V _{GS} =0V		-0.82	-1.2	V

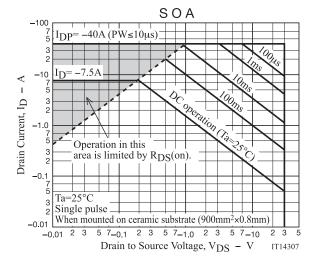
Note 2 : Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

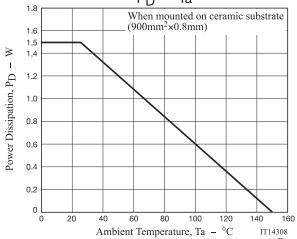
Switching Time Test Circuit

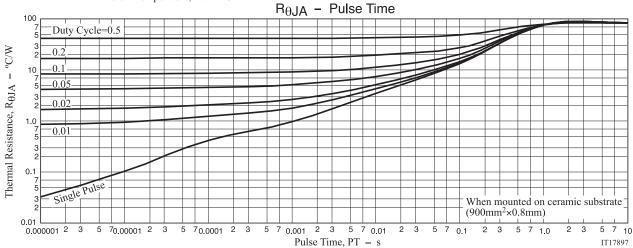






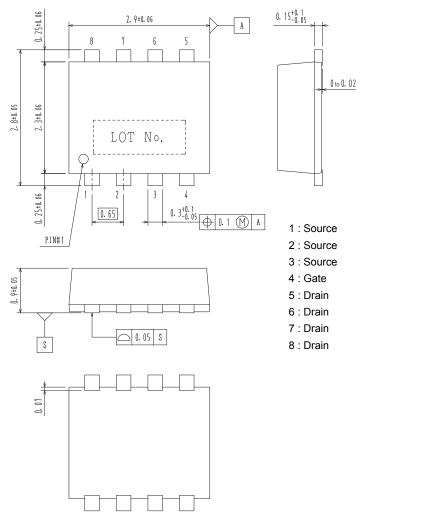




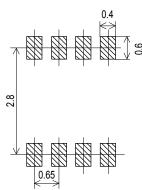


PACKAGE DIMENSIONS

unit: mm SOT-28FL / ECH8 CASE 318BF ISSUE O



Recommended Soldering Footprint



ORDERING INFORMATION

Device	Marking	Package	Shipping (Qty / Packing)	
ECH8315-TL-H	10	SOT-28FL / ECH8	2 000 / Tono 9 Dool	
ECH8315-TL-W	JS 3315-TL-W		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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