Power MOSFET –20V, 137mΩ, –2.5A, Single P-Channel

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

Features

- Low On-Resistance
- 1.8V drive
- ESD Diode-Protected Gate
- Pb-Free, Halogen Free and RoHS compliance

Typical Applications

- Load Switch
- Motor Driver

SPECIFICATIONS

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

Parameter	Symbol	Value	Unit
Drain to Source Voltage	VDSS	-20	V
Gate to Source Voltage	VGSS	±10	V
Drain Current (DC)	ID	-2.5	Α
Drain Current (Pulse) PW ≤ 10µs, duty cycle ≤ 1%	IDP	-10	Α
Power Dissipation When mounted on ceramic substrate (900mm²×0.8mm)	PD	1	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 (900mm² × 0.8mm)	$R_{ heta JA}$	125	°C/W

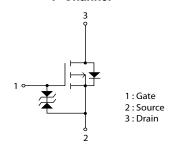


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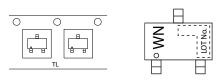
www.onsemi.com

VDSS	R _{DS} (on) Max	ID Max
	137mΩ@ –4.5V	
-20V	203mΩ@ –2.5V	-2.5A
	323mΩ@ –1.8V	

ELECTRICAL CONNECTION P-Channel



PACKING TYPE: TL MARKING



ORDERING INFORMATION

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

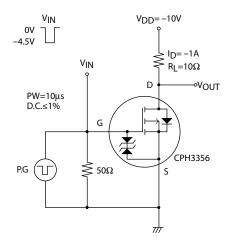
ELECTRICAL CHARACTERISTICS at Ta = 25°C (Note 2)

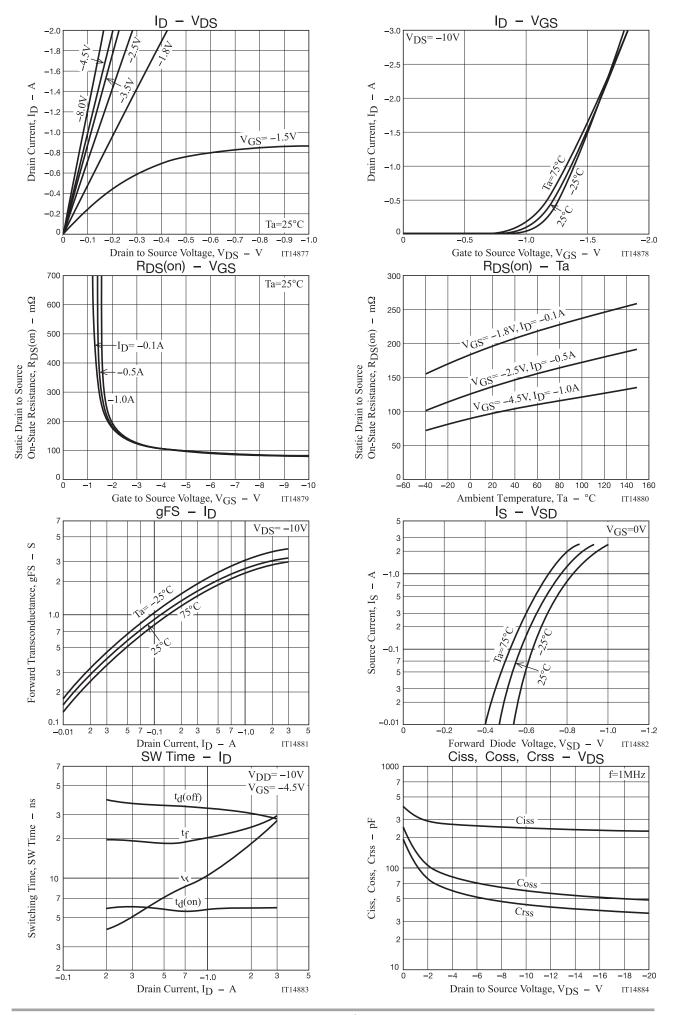
		` ,					
Parameter	Symbol	Conditions	Value			Unit	
Farameter	Syllibol	Conditions	min	typ	max	Ullit	
Drain to Source Breakdown Voltage	V(BR)DSS	I _D =-1mA, V _G S=0V	-20			V	
Zero-Gate Voltage Drain Current	IDSS	V _{DS} =-20V, V _{GS} =0V			-1	μА	
Gate to Source Leakage Current	IGSS	V _{GS} =±8V, V _{DS} =0V			±10	μΑ	
Gate Threshold Voltage	VGS(th)	V _{DS} =-10V, I _D =-1mA	-0.4		-1.4	V	
Forward Transconductance	gFS	V _{DS} =-10V, I _D =-1A		2.7		S	
	R _{DS} (on)1	I _D =-1A, V _G S=-4.5V		105	137	mΩ	
Static Drain to Source On-State Resistance	R _{DS} (on)2	I _D =-0.5A, V _G S=-2.5V		145	203	mΩ	
Resistance	R _{DS} (on)3	I _D =-0.1A, V _G S=-1.8V		215	323	mΩ	
Input Capacitance	Ciss			250		pF	
Output Capacitance	Coss	V _{DS} =-10V, f=1MHz		60		pF	
Reverse Transfer Capacitance	Crss			45		pF	
Turn-ON Delay Time	t _d (on)			5.7		ns	
Rise Time	t _r			11		ns	
Turn-OFF Delay Time	t _d (off)	See specified Test Circuit		34		ns	
Fall Time	tf			20		ns	
Total Gate Charge	Qg			3.3		nC	
Gate to Source Charge	Qgs	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-2.5A		0.65		nC	
Gate to Drain "Miller" Charge	Qgd			0.72		nC	
Forward Diode Voltage	V _{SD}	I _S =-2.5A, V _G S=0V		-0.87	-1.5	V	

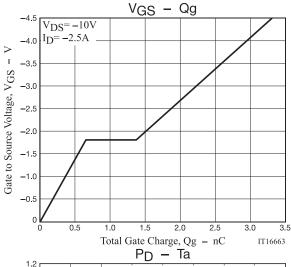
Note 2 : Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted.

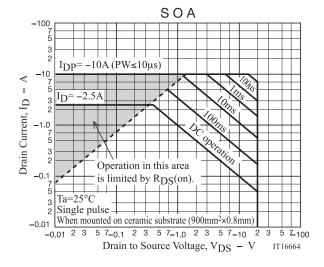
Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

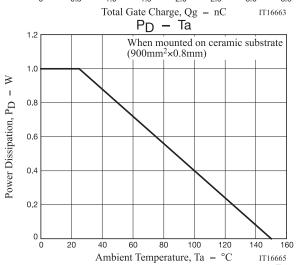
Switching Time Test Circuit

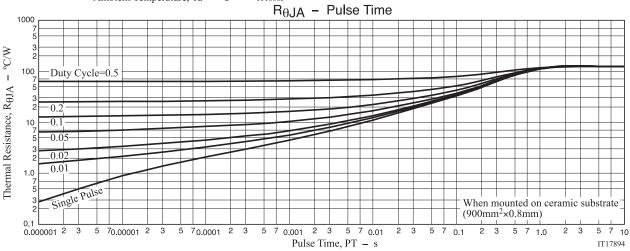






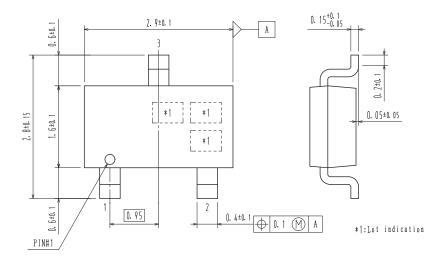






PACKAGE DIMENSIONS

Unit: mm CPH3 CASE 318BA ISSUE O

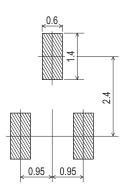


1 : Gate

2 : Source

3: Drain

Recommended Soldering Footprint



ORDERING INFORMATION

Device	Marking	Package	Shipping (Qty / Packing)	
CPH3356-TL-H	WN	CPH3 SC-59, SOT-23, TO-236	3,000 / Tape & Reel	
CPH3356-TL-W	VVIV	(Pb-Free / Halogen Free)		

[†] 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 CPH3356 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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