

VEC2415

Power MOSFET 60V, 80mΩ, 3A, Dual N-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 device is suitable for applications with low gate charge driving or low on resistance requirements.

Features

- Low On-Resistance
- 4V drive
- Low-Profile Package
- ESD Diode-Protected Gate
- Pb-Free and RoHS compliance
- Halogen Free compliance : VEC2415-TL-W

Typical Applications

- Motor Driver
- DC/DC Converter

SPECIFICATIONS

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

Parameter	Symbol	Value	Unit
Drain to Source Voltage	VDSS	60	V
Gate to Source Voltage	VGSS	±20	V
Drain Current (DC)	ID	3	A
Drain Current (Pulse) PW ≤ 10μs, duty cycle ≤ 1%	IDP	12	A
Power Dissipation When mounted on ceramic substrate (900mm ² × 0.8mm) 1unit	PD	0.9	W
Total Dissipation When mounted on ceramic substrate (900mm ² × 0.8mm)	PT	1.0	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 × 0.8mm) 1unit	RθJA	138.8	°C/W

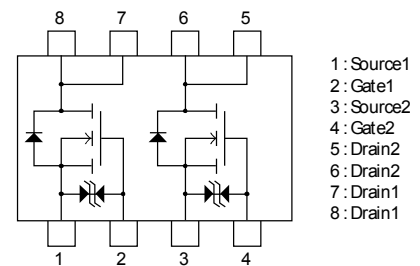


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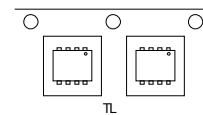
www.onsemi.com

VDSS	RDS(on) Max	ID Max
60V	80mΩ@ 10V	3A
	106mΩ@ 4.5V	
	116mΩ@ 4V	

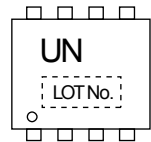
ELECTRICAL CONNECTION N-Channel



PACKING TYPE : TL



MARKING



ORDERING INFORMATION

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

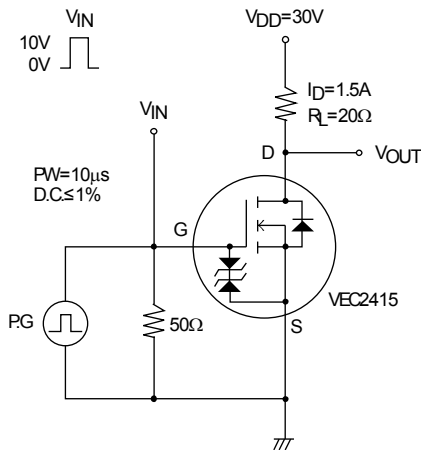
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ELECTRICAL CHARACTERISTICS at Ta = 25°C (Note 2)

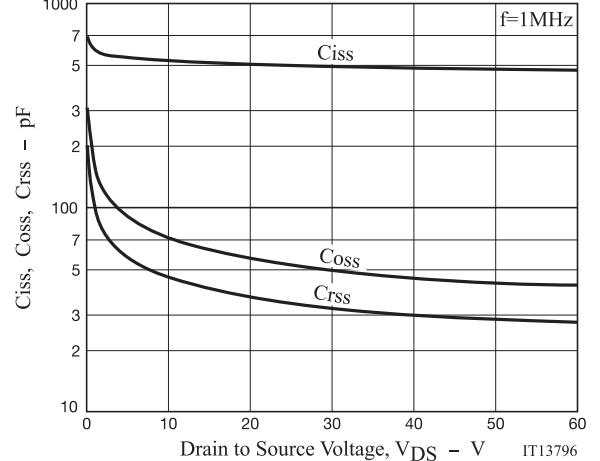
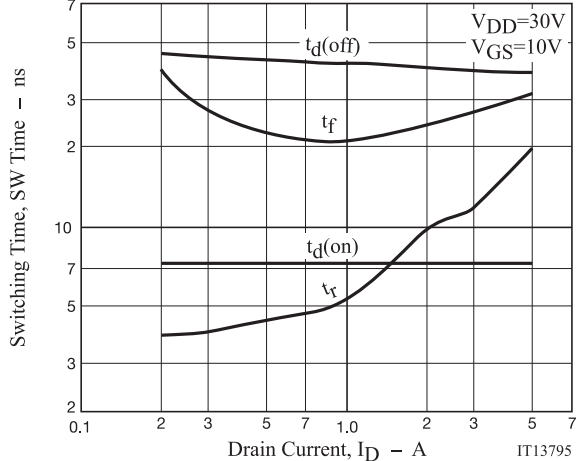
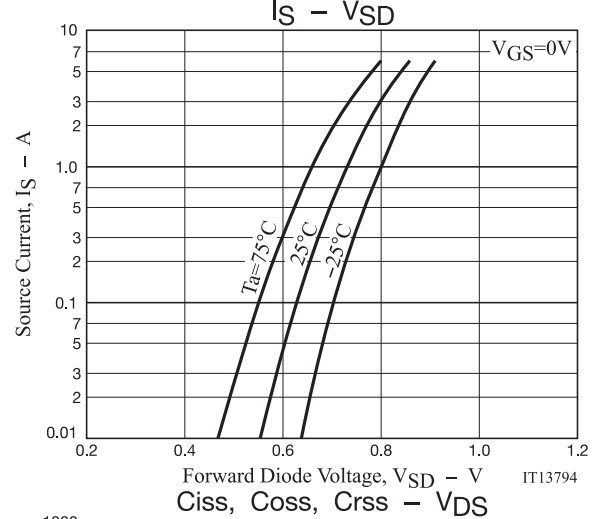
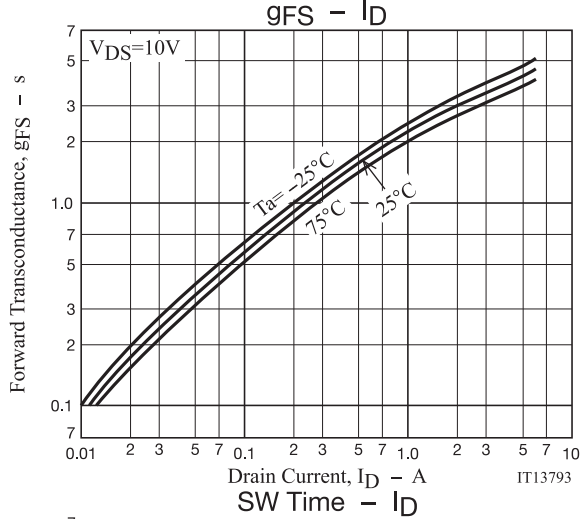
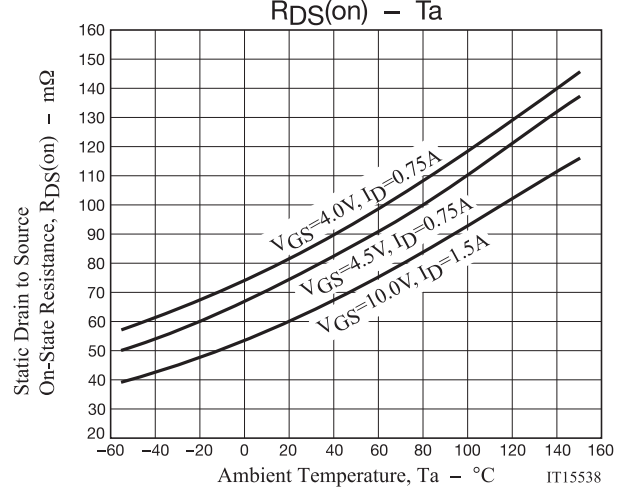
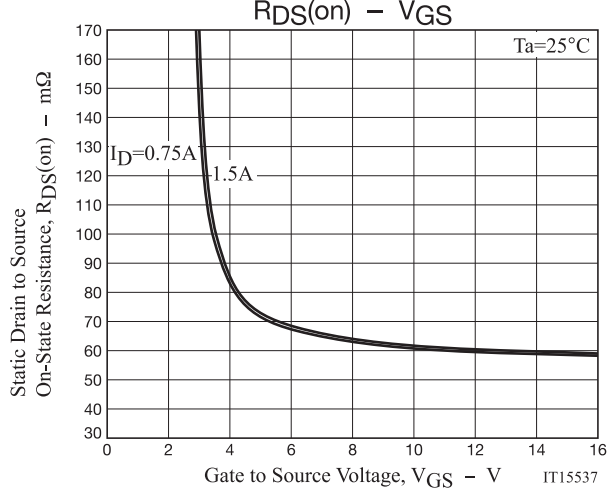
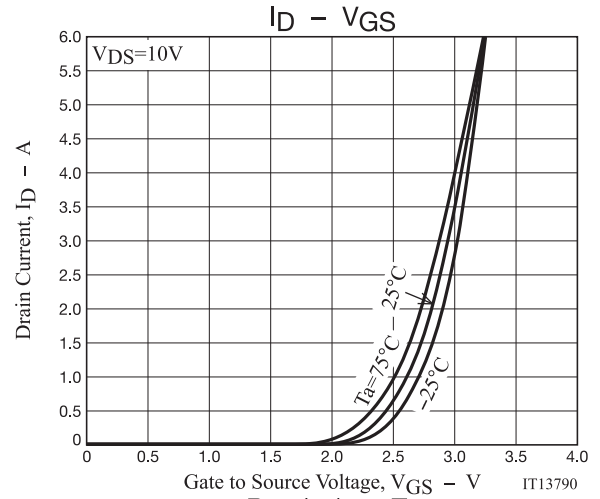
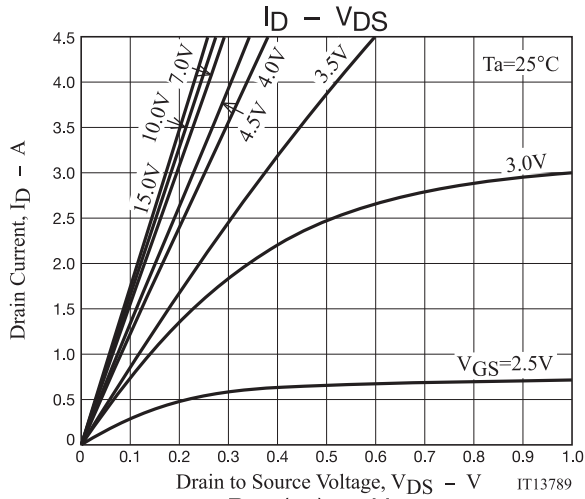
Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=10V, I_D=1mA$	1.2		2.6	V
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=1.5A$		2.6		S
Static Drain to Source On-State Resistance	$R_{DS(on)1}$	$I_D=1.5A, V_{GS}=10V$		62	80	$m\Omega$
	$R_{DS(on)2}$	$I_D=0.75A, V_{GS}=4.5V$		76	106	$m\Omega$
	$R_{DS(on)3}$	$I_D=0.75A, V_{GS}=4V$		83	116	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		505		pF
Output Capacitance	C_{oss}			57		pF
Reverse Transfer Capacitance	C_{rss}			37		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit		7.3		ns
Rise Time	t_r			7.5		ns
Turn-OFF Delay Time	$t_d(off)$			41		ns
Fall Time	t_f			22		ns
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=3A$		10		nC
Gate to Source Charge	Q_{gs}			1.6		nC
Gate to Drain "Miller" Charge	Q_{gd}			2.1		nC
Forward Diode Voltage	V_{SD}	$I_S=3A, V_{GS}=0V$		0.81	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.

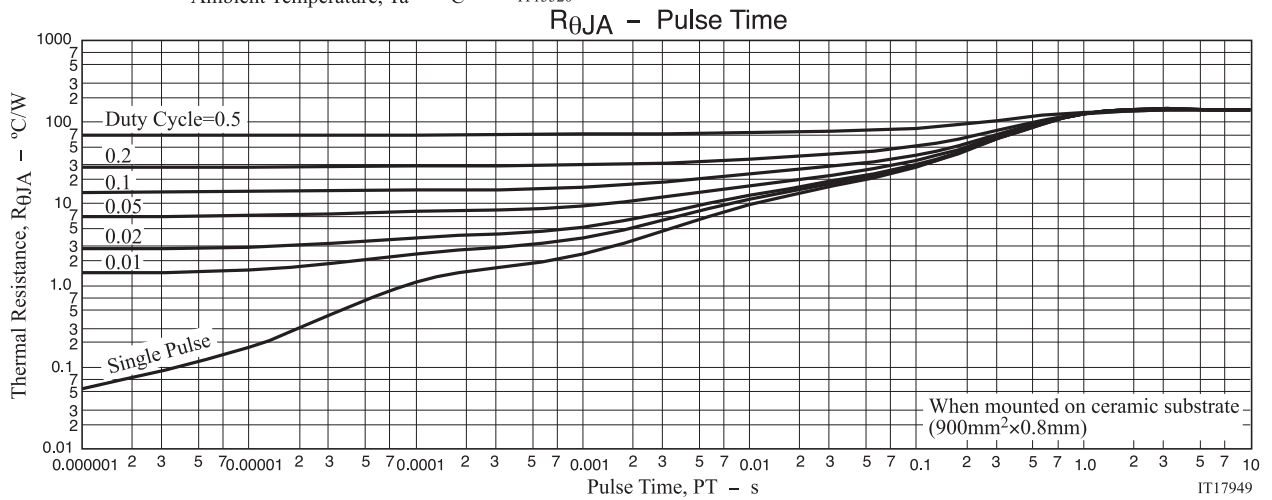
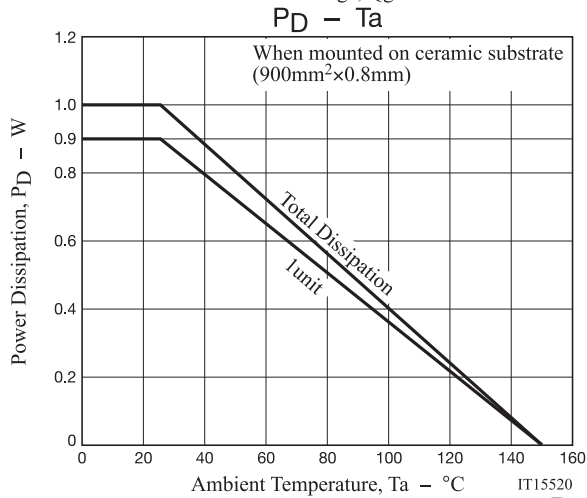
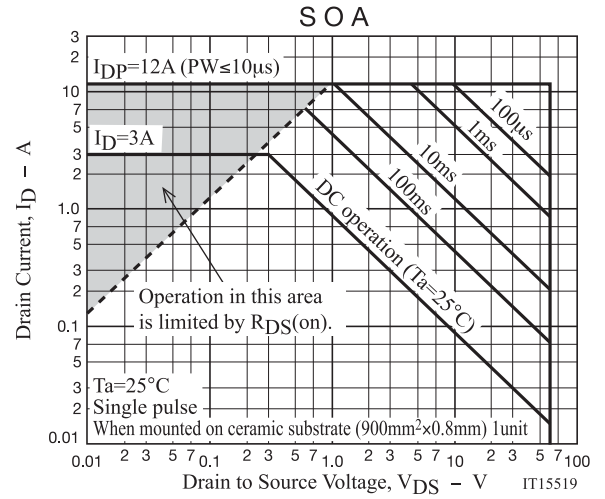
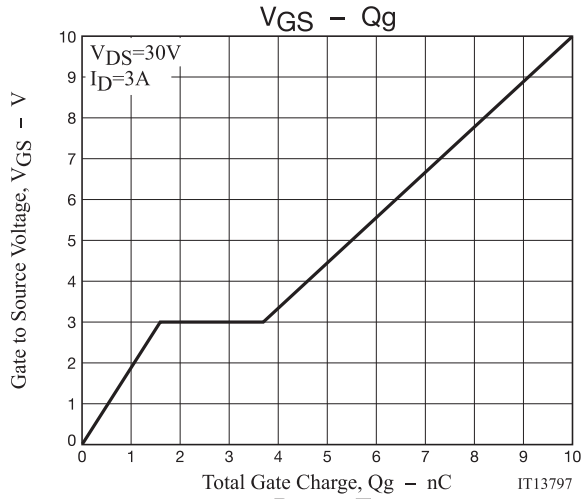
Switching Time Test Circuit



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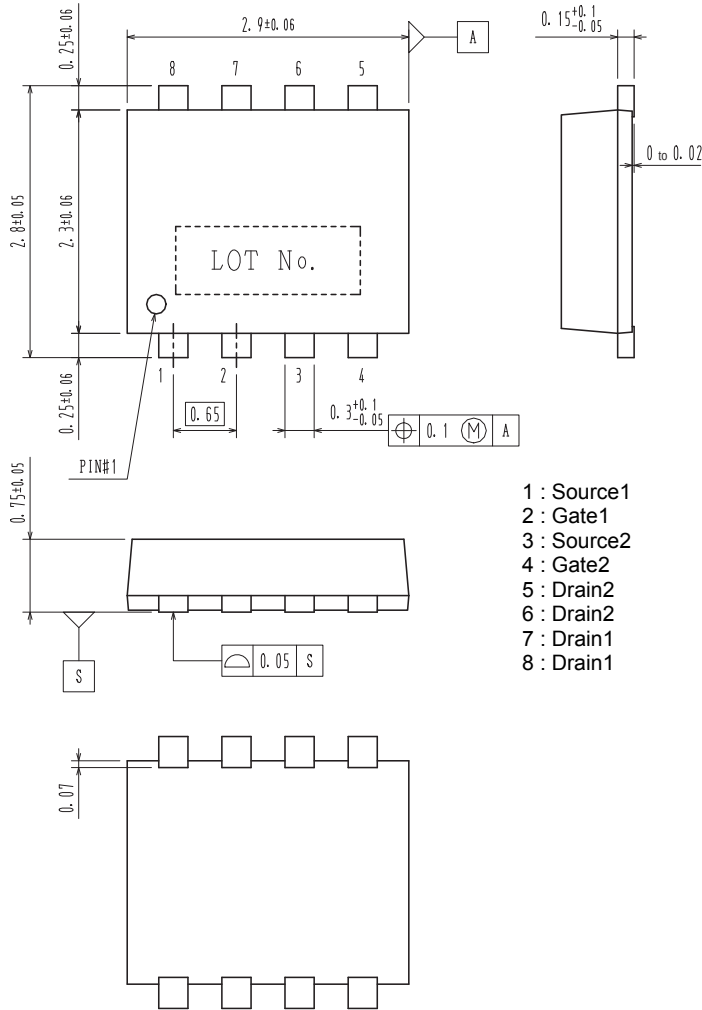


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PACKAGE DIMENSIONS

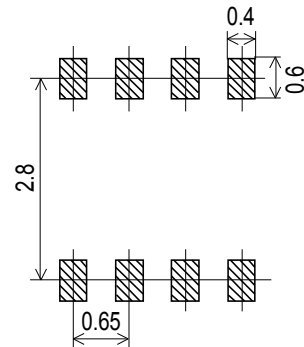
unit : mm

SOT-28FL / VEC8
CASE 318AH
ISSUE O



- 1 : Source1
- 2 : Gate1
- 3 : Source2
- 4 : Gate2
- 5 : Drain2
- 6 : Drain2
- 7 : Drain1
- 8 : Drain1

Recommended Soldering Footprint



ORDERING INFORMATION

Device	Marking	Package	Shipping (Qty / Packing)
VEC2415-TL-E	UN	SOT-28FL / VEC8 (Pb-Free)	3,000 / Tape & Reel
VEC2415-TL-W		SOT-28FL / VEC8 (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 VEC2415 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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