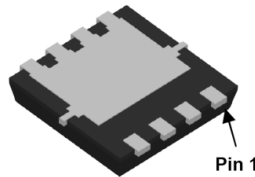
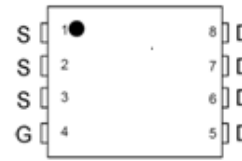
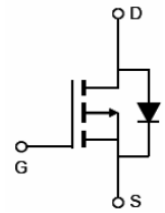


**Main Product Characteristics:**

$V_{DSS}$	-30V
$R_{DS(on)}$	6.7m $\Omega$ (typ.)
$I_D$	-28A


**DFN3.3x3.3-8L**  
**Bottom view**

**Pin Assignment**

**Schematic diagram**
**Features and Benefits:**

- Advanced trench MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature


**Description:**

It utilizes the latest trench processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications

**Absolute max Rating:**

Symbol	Parameter	Max.	Units
$I_D @ TC = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$ ①	-28	A
$I_{DM}$	Pulsed Drain Current ②	-80	
$P_D @ TC = 25^\circ C$	Power Dissipation ③	40	W
$V_{DS}$	Drain-Source Voltage	-30	V
$V_{GS}$	Gate-to-Source Voltage	$\pm 20$	V
$T_J \quad T_{STG}$	Operating Junction and Storage Temperature Range	-55 to + 150	$^\circ C$

## Thermal Resistance

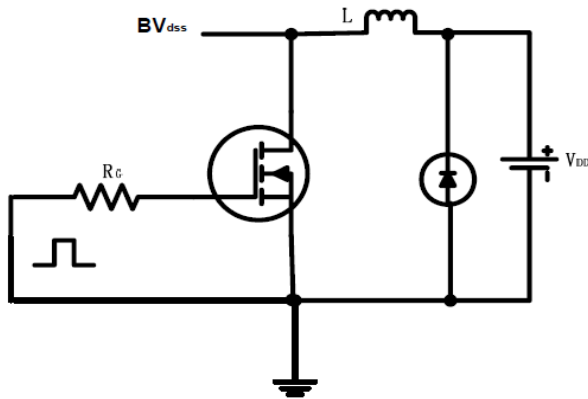
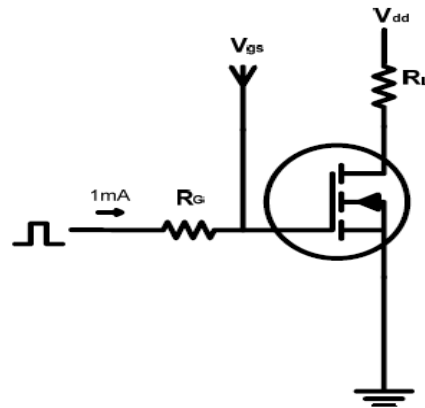
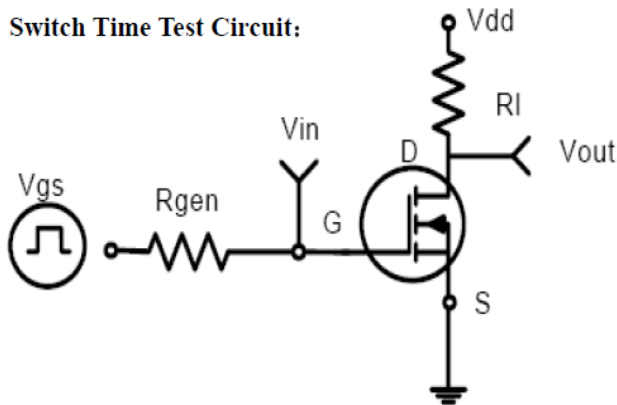
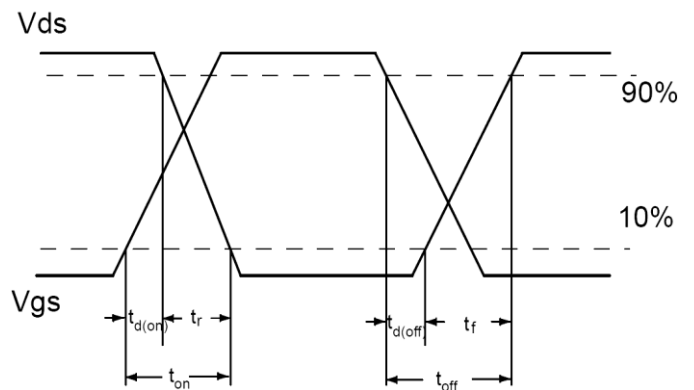
Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-case ③	—	3.13	$^{\circ}\text{C}/\text{W}$

## Electrical Characterizes @ $T_A=25^{\circ}\text{C}$ unless otherwise specified

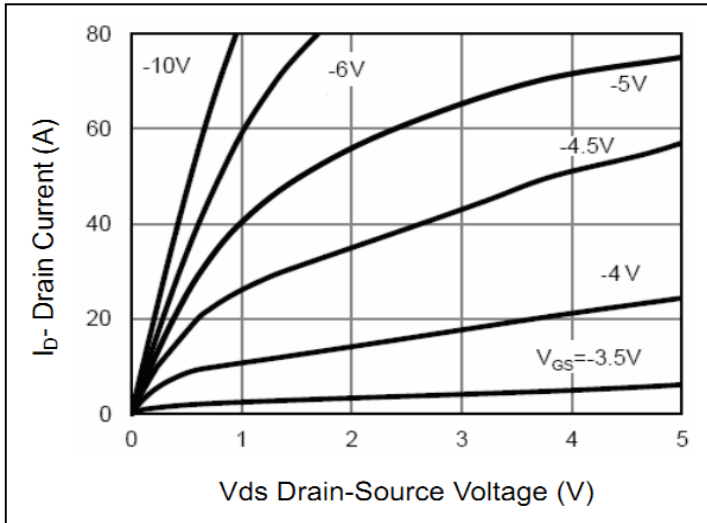
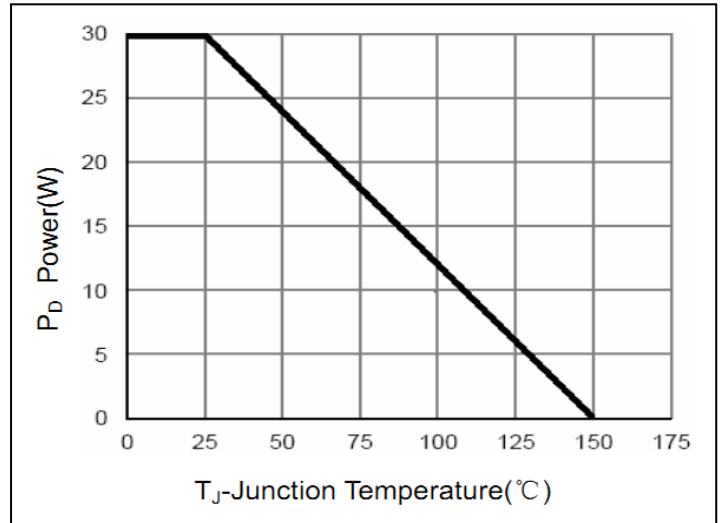
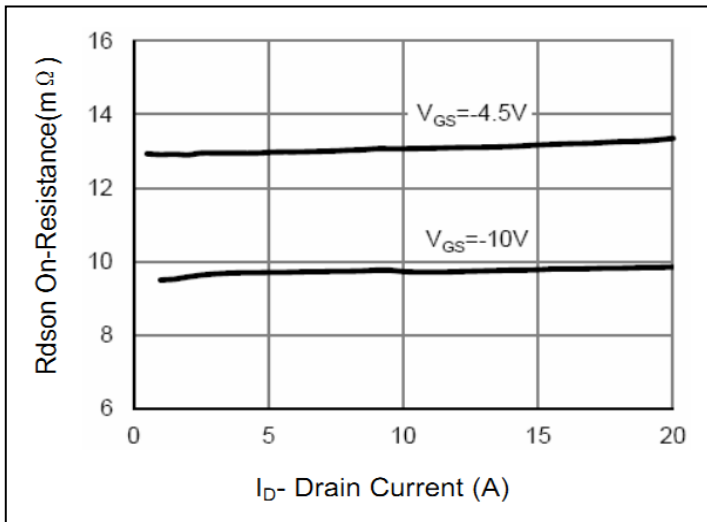
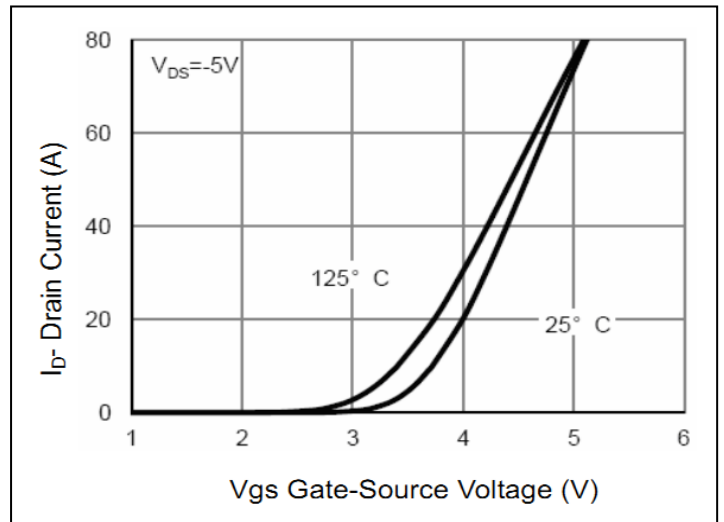
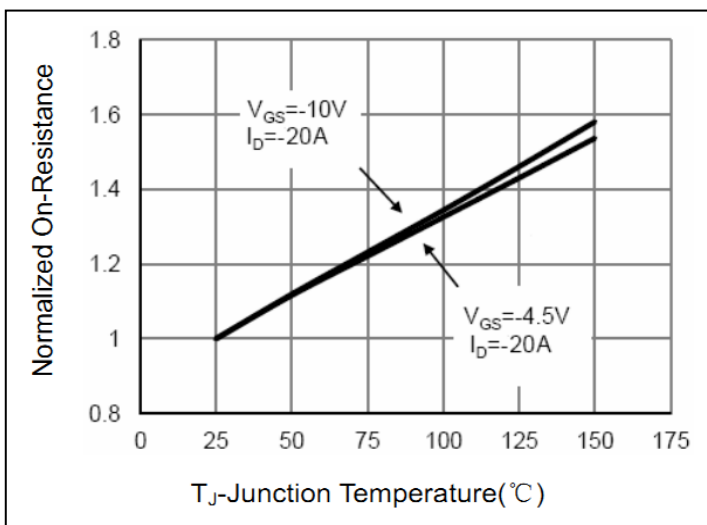
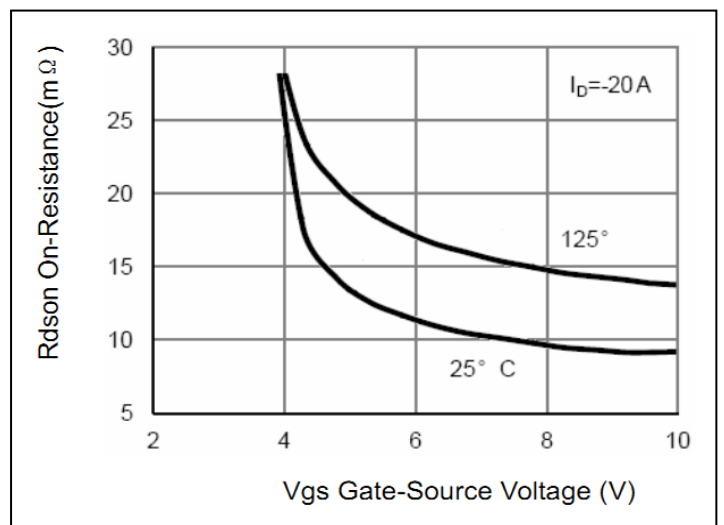
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	-30	—	—	V	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	6.7	9	m $\Omega$	$V_{GS}=-10\text{V}, I_D = -20\text{A}$
		—	9.5	17		$V_{GS}=-4.5\text{V}, I_D = -20\text{A}$
$V_{GS(th)}$	Gate threshold voltage	-1	—	-2.5	V	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$
$I_{DSS}$	Drain-to-Source leakage current	—	—	-1	$\mu\text{A}$	$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}$
$I_{GSS}$	Gate-to-Source forward leakage	—	—	100	nA	$V_{GS} = 20\text{V}$
		—	—	-100		$V_{GS} = -20\text{V}$
$Q_g$	Total gate charge	—	30	—	nC	$I_D = -20\text{A},$ $V_{DS}=-15\text{V},$ $V_{GS} = -10\text{V}$
$Q_{gs}$	Gate-to-Source charge	—	5	—		
$Q_{gd}$	Gate-to-Drain("Miller") charge	—	10	—		
$t_{d(on)}$	Turn-on delay time	—	11	—	ns	$V_{GS}=-10\text{V}, V_{DS}=-15\text{V},$ $I_D=-20\text{A}$ $R_{GEN}=3\Omega$
$t_r$	Rise time	—	10	—		
$t_{d(off)}$	Turn-Off delay time	—	25	—		
$t_f$	Fall time	—	13	—		
$C_{iss}$	Input capacitance	—	2050	—	pF	$V_{GS} = 0\text{V}$ $V_{DS} = -15\text{V}$ $f = 1\text{MHz}$
$C_{oss}$	Output capacitance	—	370	—		
$C_{riss}$	Reverse transfer capacitance	—	300	—		

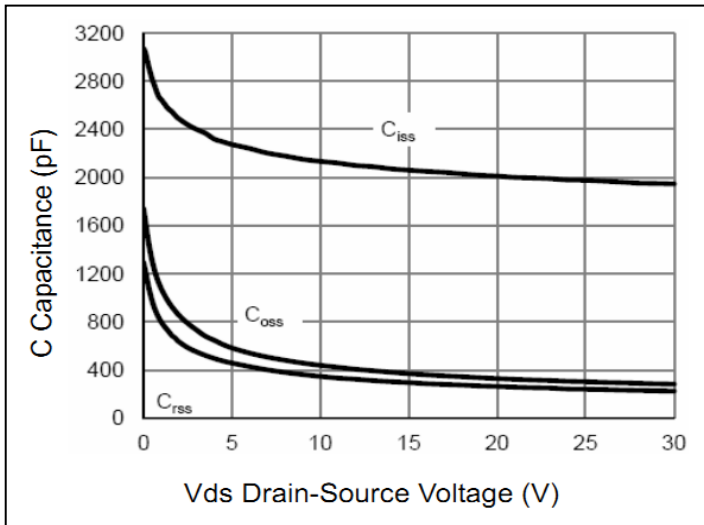
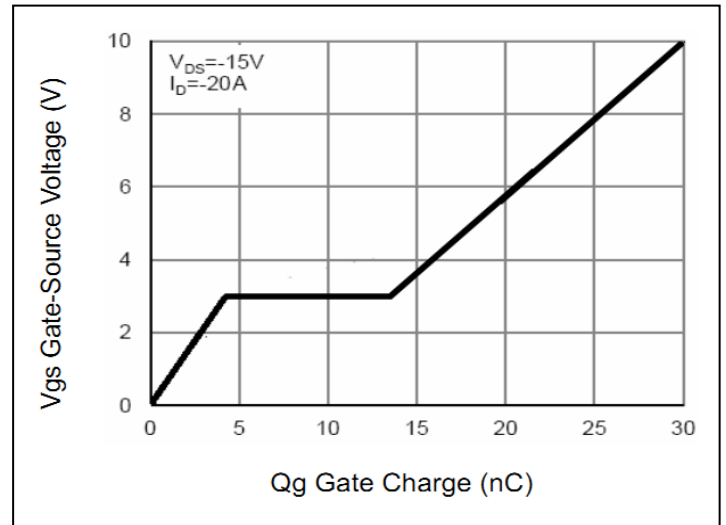
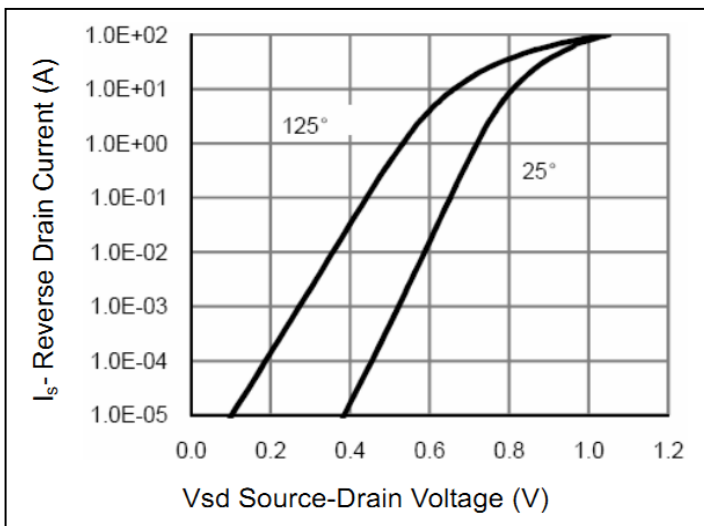
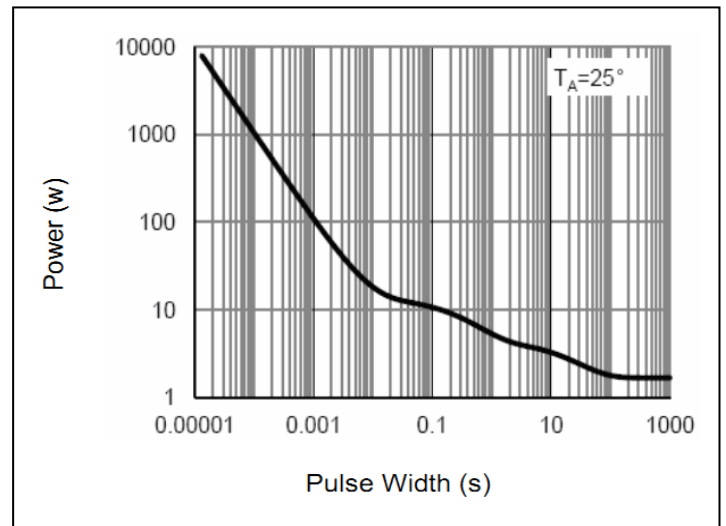
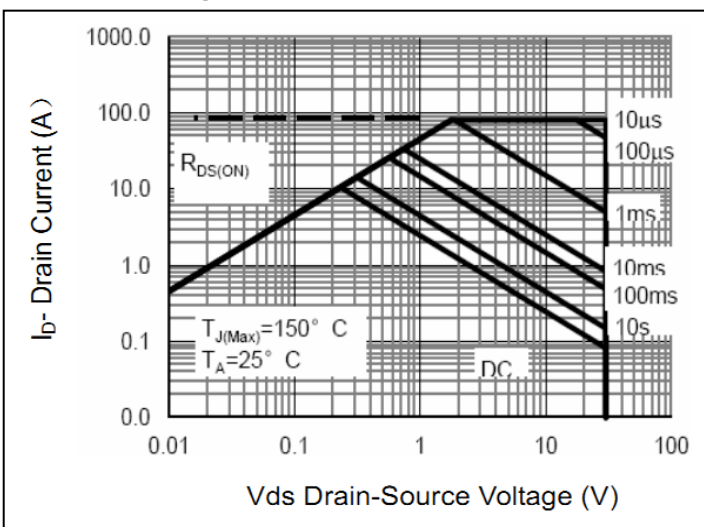
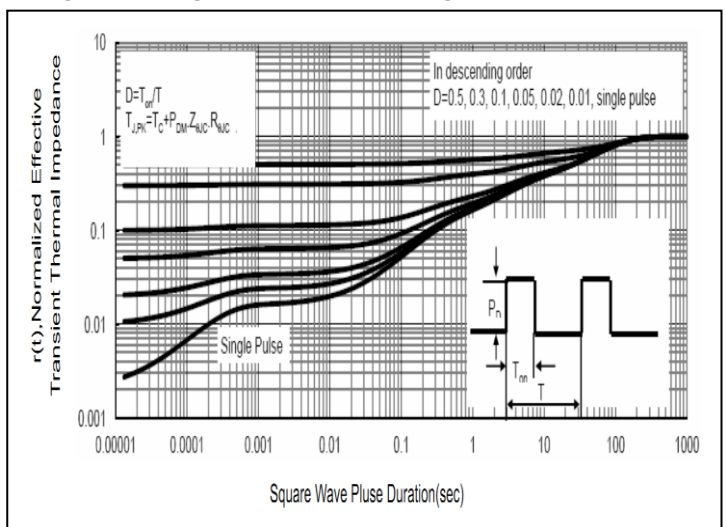
## Source-Drain Ratings and Characteristics

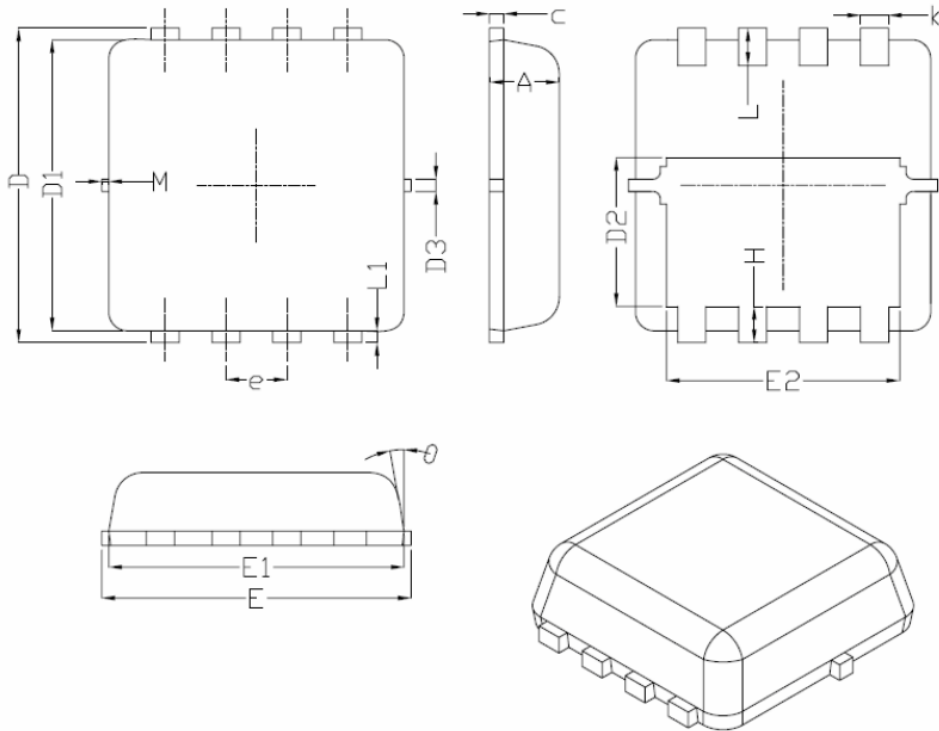
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$I_S$	Continuous Source Current (Body Diode)	—	—	-28	A	MOSFET symbol showing the integral reverse p-n junction diode. 
$I_{SM}$	Pulsed Source Current (Body Diode)	—	—	-80	A	
$V_{SD}$	Diode Forward Voltage	—	—	-1.2	V	$I_S=-28\text{A}, V_{GS}=0\text{V}$

**Test circuits and Waveforms**
**EAS test circuits:**

**Gate charge test circuit:**

**Switch Time Test Circuit:**

**Switch Waveforms:**

**Notes:**

- ① The maximum current rating is limited by bond-wires.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.

**Typical electrical and thermal characteristics**

**Figure 1. Typical Output Characteristics**

**Figure 2. Power Dissipation**

**Figure 3. Drain-to-Source On-Resistance**

**Figure 4. Transfer Characteristics**

**Figure 5. Normalized On-Resistance Vs. Case Temperature**

**Figure 6. On-Resistance Vs. Gate-Source Voltage**

**Typical electrical and thermal characteristics**

**Figure 7. Capacitance Vs. Drain-Source Voltage**

**Figure 8. Gate Charge**

**Figure 9. Source-Drain Forward**

**Figure 10. Single Pulse Power Rating Junction-to-Ambient**

**Figure 11. Safe Operation Area**

**Figure 12. Maximum Effective Transient Thermal Impedance**

**Mechanical Data:**


Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.48	1.58	1.68
D3	-	0.13	-
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	-	0.13	-
M	*	*	0.15
$\theta$		10°	12°

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