

P-Channel 100-V (D-S) MOSFET

Key Features:

- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

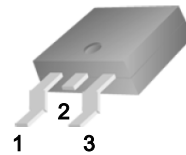
Typical Applications:

- White LED boost converters
- Automotive Systems
- Industrial DC/DC Conversion Circuits

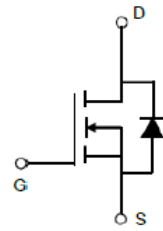
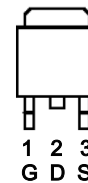
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (m Ω)	I_D (A)
-100	16 @ $V_{GS} = -10V$	-90 ^a
	17 @ $V_{GS} = -4.5V$	



RoHS
COMPLIANT
HALOGEN
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TO-263



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	-100	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ^a	$T_C = 25^\circ C$	I_D	-90	A
Pulsed Drain Current ^b		I_{DM}	-360	
Continuous Source Current (Diode Conduction) ^a	$T_C = 25^\circ C$	I_S	-90	A
Power Dissipation ^a	$T_C = 25^\circ C$	P_D	300	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 175	$^\circ C$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient ^c	$R_{\theta JA}$	62.5	$^\circ C/W$
Maximum Junction-to-Case	$R_{\theta JC}$	0.5	

Notes

- Package Limited
- Pulse width limited by maximum junction temperature
- Surface Mounted on 1" x 1" FR4 Board.

Electrical Characteristics

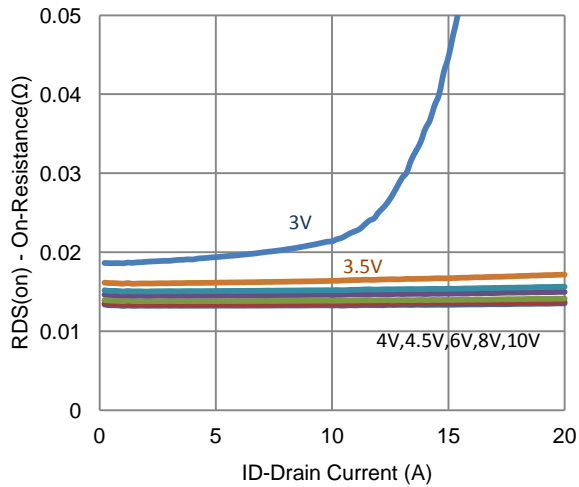
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250 \mu A$	-1			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -80 V, V_{GS} = 0 V$			-1	uA
		$V_{DS} = -80 V, V_{GS} = 0 V, T_J = 55^\circ C$			-10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = -5 V, V_{GS} = -10 V$	-112.5			A
Drain-Source On-Resistance ^a	$r_{DS(on)}$	$V_{GS} = -10 V, I_D = -45 A$			16	mΩ
		$V_{GS} = -4.5 V, I_D = -44 A$			17	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -15 V, I_D = -45 A$		59		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -45 A, V_{GS} = 0 V$		-0.93		V
Dynamic ^b						
Total Gate Charge	Q_g	$V_{DS} = -50 V, V_{GS} = -4.5 V,$ $I_D = -2 A$		236		nC
Gate-Source Charge	Q_{gs}			70		
Gate-Drain Charge	Q_{gd}			69		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS} = -50 V, R_L = 25 \Omega,$ $I_D = -2 A,$ $V_{GEN} = -10 V, R_{GEN} = 6 \Omega$		34		ns
Rise Time	t_r			37		
Turn-Off Delay Time	$t_{d(off)}$			514		
Fall Time	t_f			146		
Input Capacitance	C_{iss}	$V_{DS} = -50 V, V_{GS} = 0 V, f = 1 \text{ Mhz}$		15879		pF
Output Capacitance	C_{oss}			366		
Reverse Transfer Capacitance	C_{rss}			364		

Notes

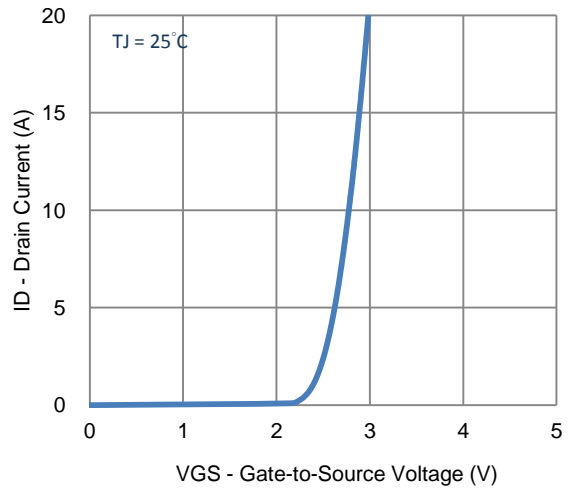
- Pulse test: PW <= 300us duty cycle <= 2%.
- Guaranteed by design, not subject to production testing.

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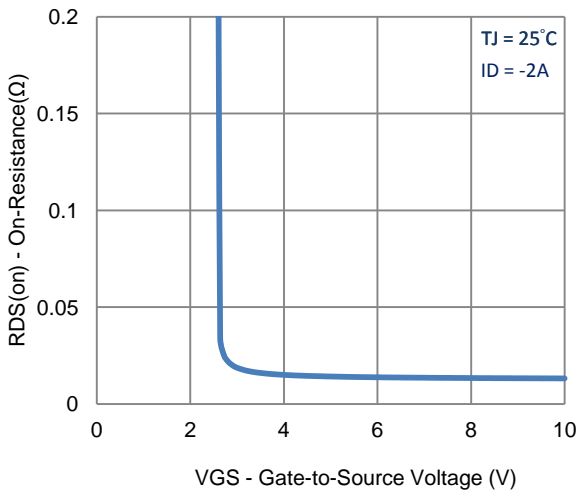
Typical Electrical Characteristics



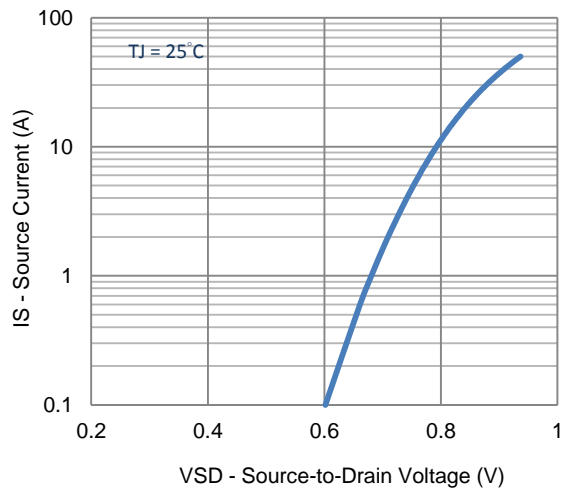
1. On-Resistance vs. Drain Current



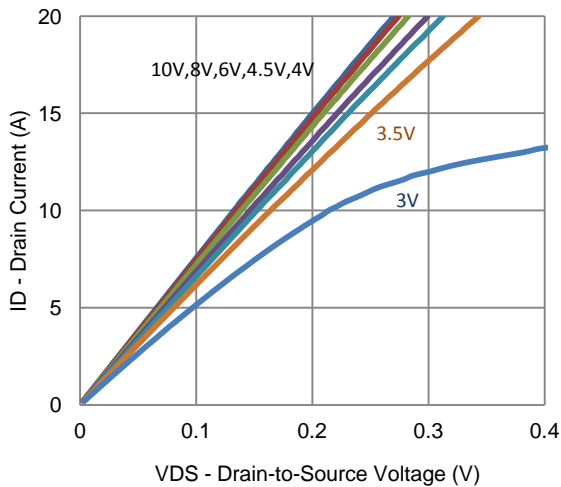
2. Transfer Characteristics



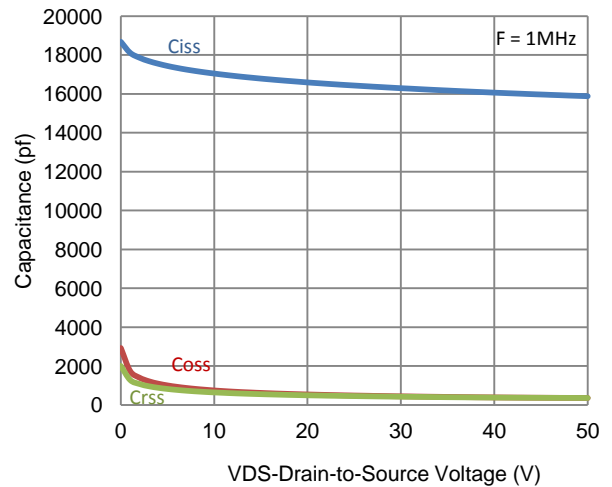
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

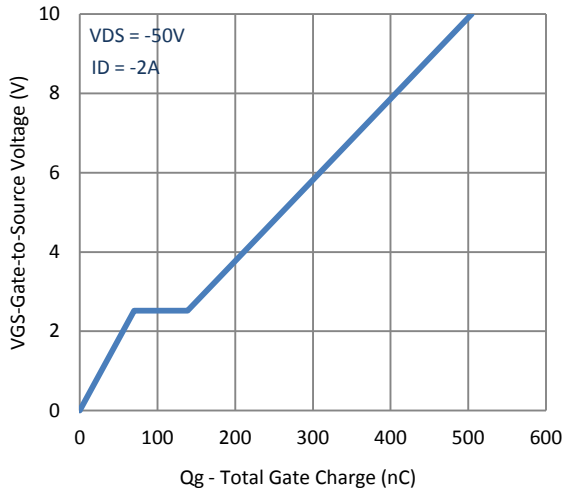


5. Output Characteristics

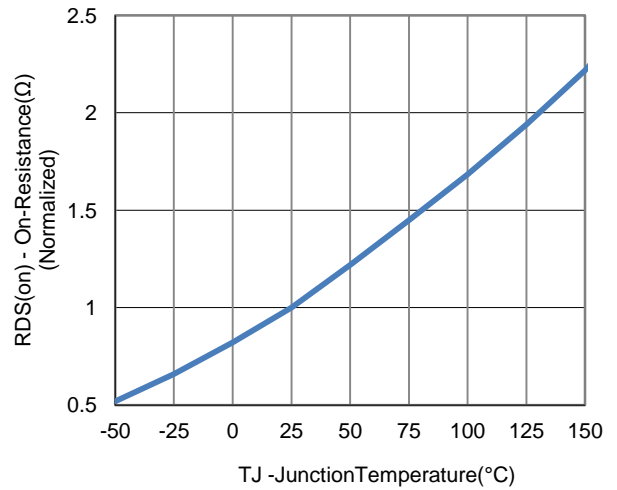


6. Capacitance

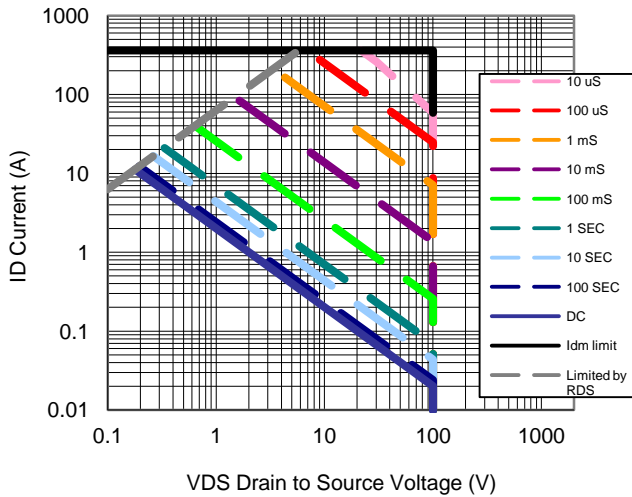
Typical Electrical Characteristics



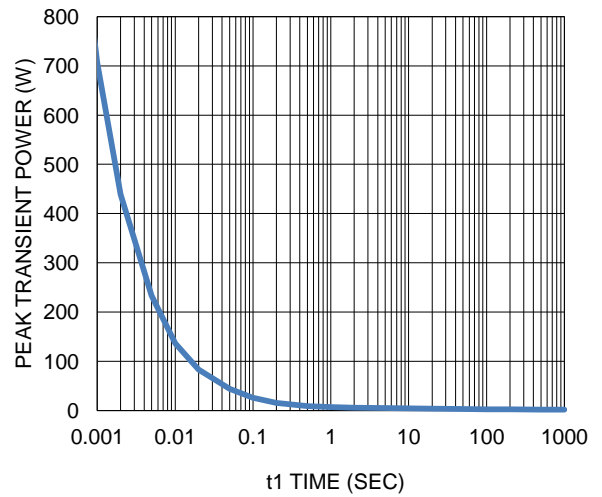
7. Gate Charge



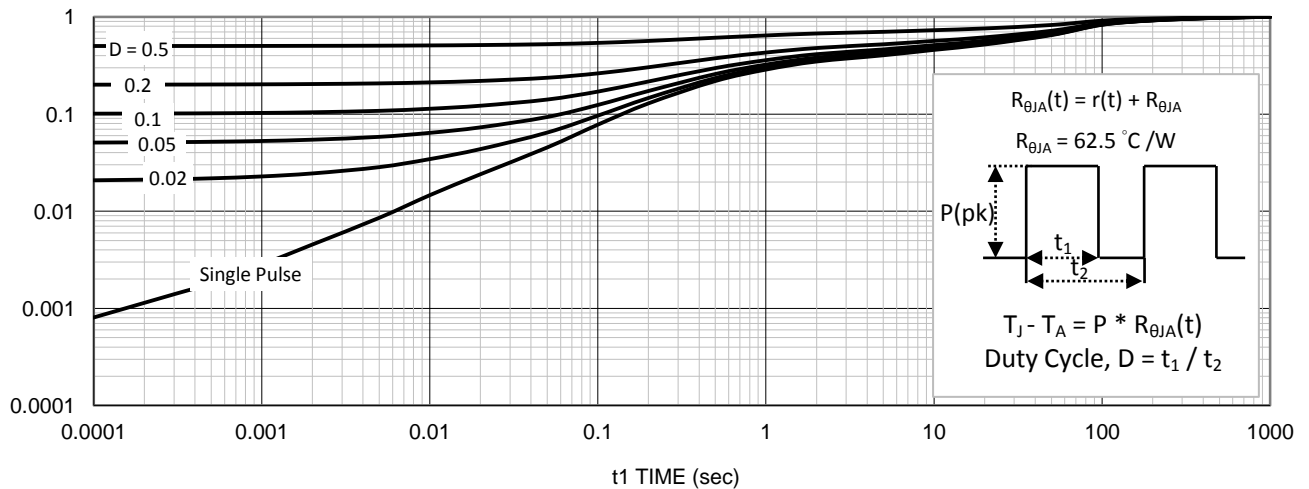
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area

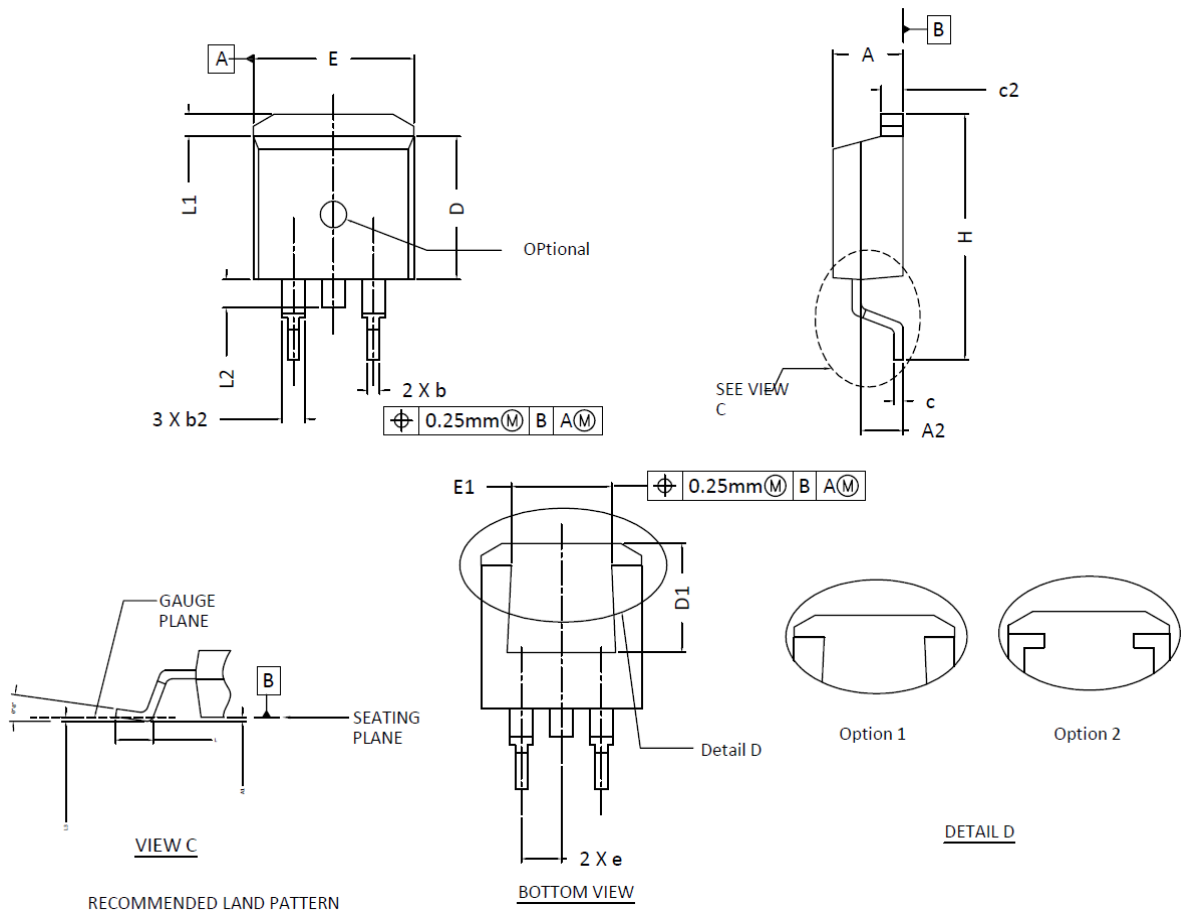


10. Single Pulse Maximum Power Dissipation

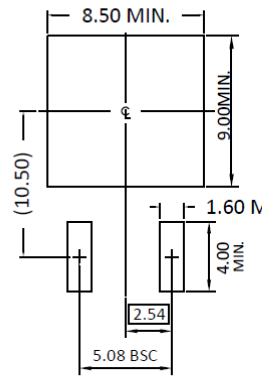


11. Normalized Thermal Transient Junction to Ambient

Package Information



RECOMMENDED LAND PATTERN



UNIT: mm

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.064	4.45	4.826	0.160	0.175	0.190
A1	0.00	---	0.254	0.000	---	0.010
A2	2.20	2.67	2.90	0.087	0.105	0.114
b	0.508	0.81	0.991	0.020	0.032	0.039
b2	1.143	1.27	1.778	0.045	0.050	0.070
c	0.381	0.50	0.737	0.015	0.020	0.029
c2	1.143	1.27	1.651	0.045	0.050	0.065
D	8.382	9.14	9.652	0.330	0.360	0.380
D1	6.858	8.00	8.37	0.270	0.315	0.330
e	2.54 BSC			0.100 BSC.		
E	9.652	10.03	10.668	0.380	0.395	0.420
E1	6.223	8.00	8.37	0.245	0.315	0.330
H	14.605	15.24	15.875	0.575	0.600	0.625
L	1.778	2.54	2.794	0.070	0.100	0.110
L1	1.02	1.27	1.676	0.040	0.050	0.066
L2	1.27	1.52	1.778	0.050	0.060	0.070
L3	0.25 BSC			0.010 BSC.		

- NOTE:
1. PACKAGE BODY SIDES EXCLUDE MOLD FLASH AND GATE BURRS. MOLD FLASH SHOULD BE LESS THAN 6 MILS.
 2. TOLERANCE 0.10 MILLIMETERS UNLESS OTHERWISE SPECIFIED.
 3. DIMENSION L IS MEASURED IN GAUGE LINE.
 4. CONTROLLING DIMENSION IS MILLIMETER. CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.
 5. REFER TO JEDEC TO-263 AB.