

## P-Channel 80-V (D-S) MOSFET

### Key Features:

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

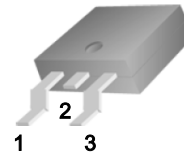
### Typical Applications:

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

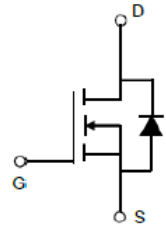
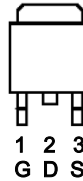
PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ (m $\Omega$ )	$I_D$ (A)
-80	11.2 @ $V_{GS} = -10V$	-110 <sup>a</sup>
	14.5 @ $V_{GS} = -5.5V$	



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**



TO-263



### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Limit	Units
Drain-Source Voltage	$V_{DS}$	-80	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current <sup>a</sup>	$I_D$	-110	A
Pulsed Drain Current <sup>b</sup>		-390	
Continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	-110	A
Power Dissipation <sup>a</sup>	$P_D$	300	W
Operating Junction and Storage Temperature Range		$T_J, T_{stg}$	

### THERMAL RESISTANCE RATINGS

Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient <sup>a</sup>	$R_{\theta JA}$	62.5	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Case	$R_{\theta JC}$	1	

### Notes

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

## Electrical Characteristics

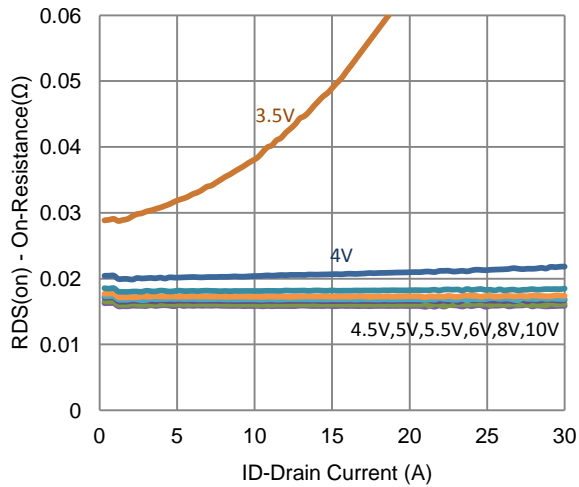
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static</b>						
Gate-Source Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250 \mu A$	1			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -64 V, V_{GS} = 0 V$			-1	uA
		$V_{DS} = -64 V, V_{GS} = 0 V, T_J = 55^\circ C$			-25	
On-State Drain Current	$I_{D(on)}$	$V_{DS} = -5 V, V_{GS} = -10 V$	-120			A
Drain-Source On-Resistance	$r_{DS(on)}$	$V_{GS} = -10 V, I_D = -45 A$			11.2	m $\Omega$
		$V_{GS} = -5.5 V, I_D = -44 A$			14.5	
Forward Transconductance	$g_{fs}$	$V_{DS} = -15 V, I_D = -20 A$		30		S
Diode Forward Voltage	$V_{SD}$	$I_S = -55 A, V_{GS} = 0 V$		-0.92		V
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS} = -40 V, V_{GS} = -5.5 V,$ $I_D = -20 A$		168		nC
Gate-Source Charge	$Q_{gs}$			47		
Gate-Drain Charge	$Q_{gd}$			78		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS} = -40 V, R_L = 2 \Omega,$ $I_D = -20 A,$ $V_{GEN} = -10 V, R_{GEN} = 6 \Omega$		25		ns
Rise Time	$t_r$			73		
Turn-Off Delay Time	$t_{d(off)}$			351		
Fall Time	$t_f$			144		
Input Capacitance	$C_{iss}$	$V_{DS} = -15 V, V_{GS} = 0 V, f = 1 MHz$		16071		pF
Output Capacitance	$C_{oss}$			966		
Reverse Transfer Capacitance	$C_{rss}$			858		

## Notes

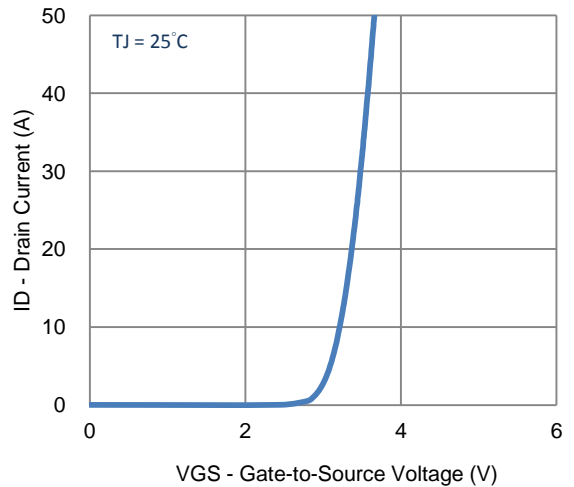
- Pulse test: PW  $\leq$  300us duty cycle  $\leq$  2%.
- Guaranteed by design, not subject to production testing.

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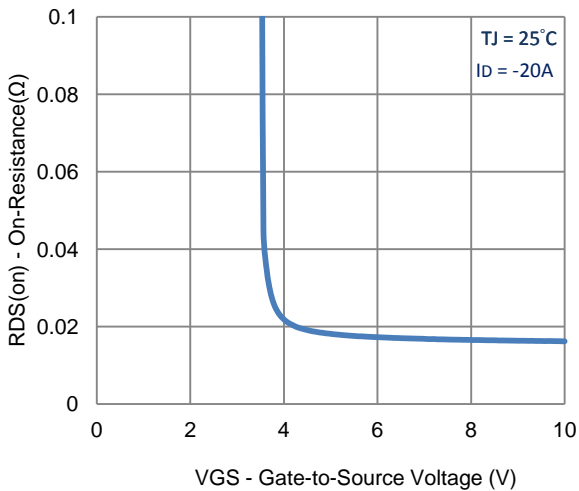
Typical Electrical Characteristics



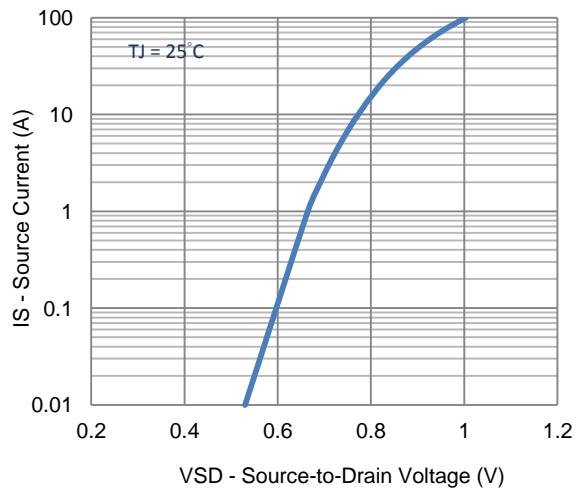
1. On-Resistance vs. Drain Current



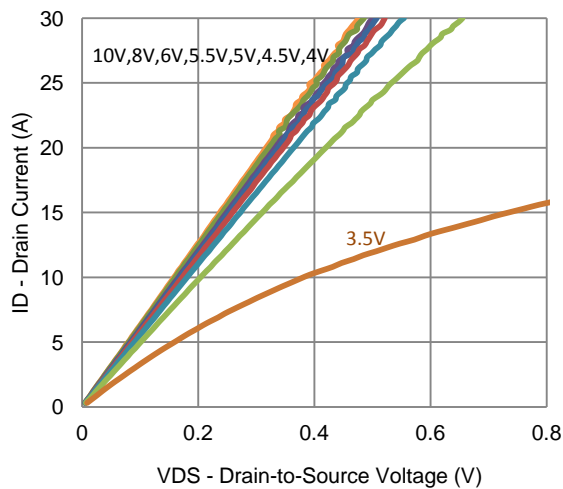
2. Transfer Characteristics



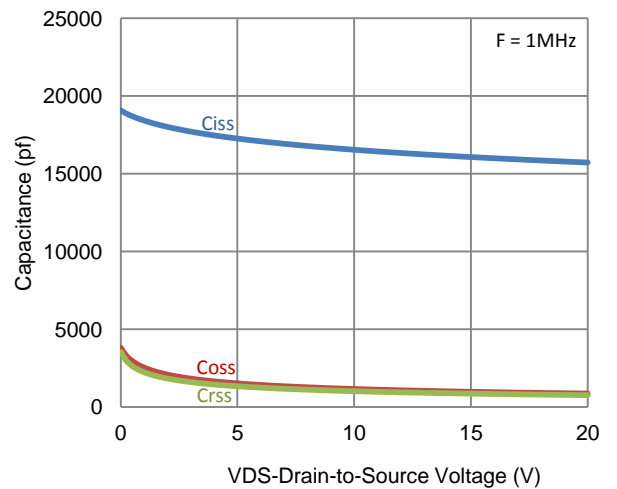
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

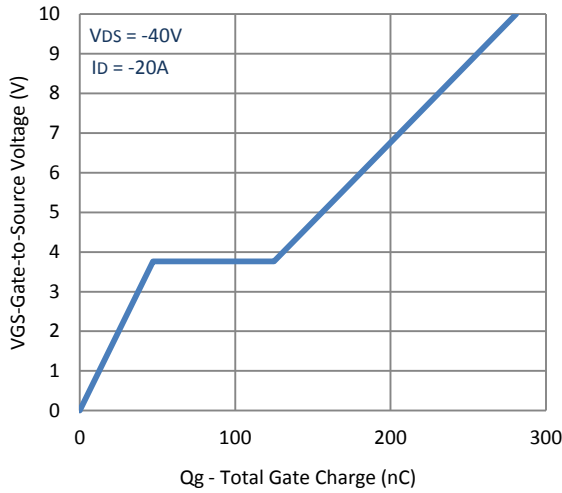


5. Output Characteristics

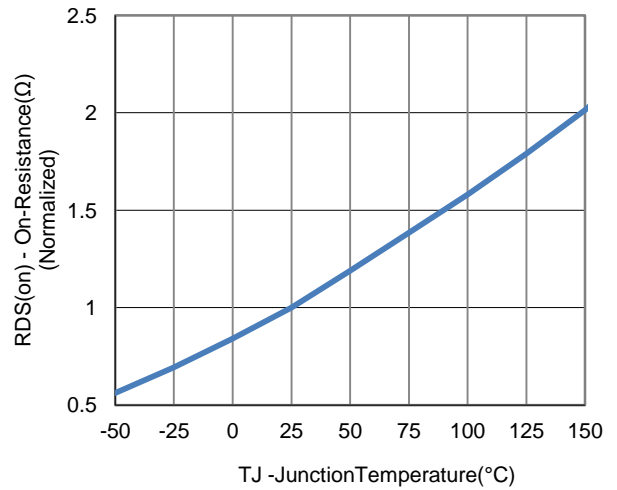


6. Capacitance

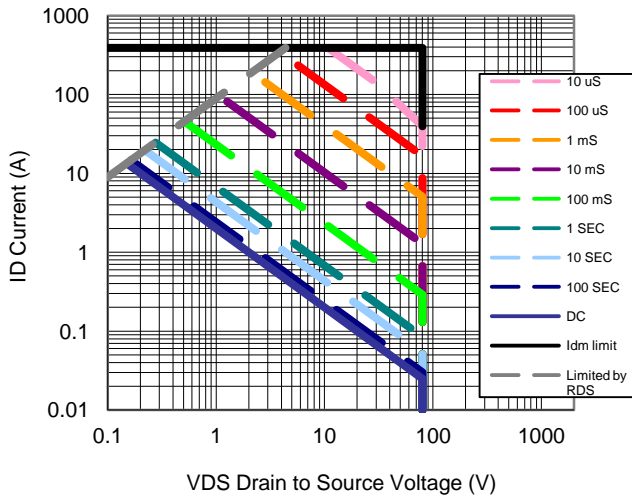
Typical Electrical Characteristics



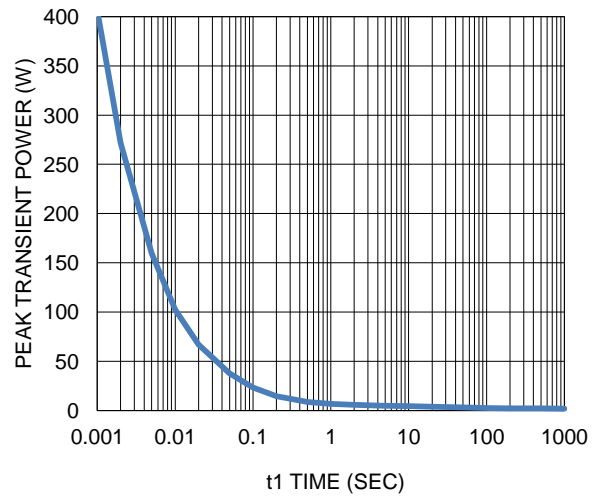
7. Gate Charge



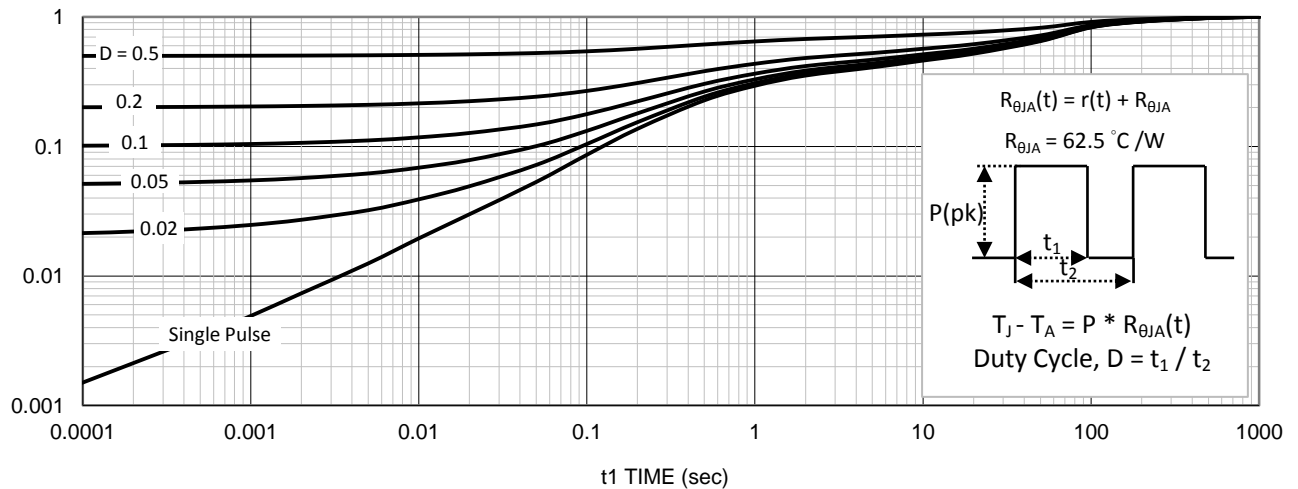
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area

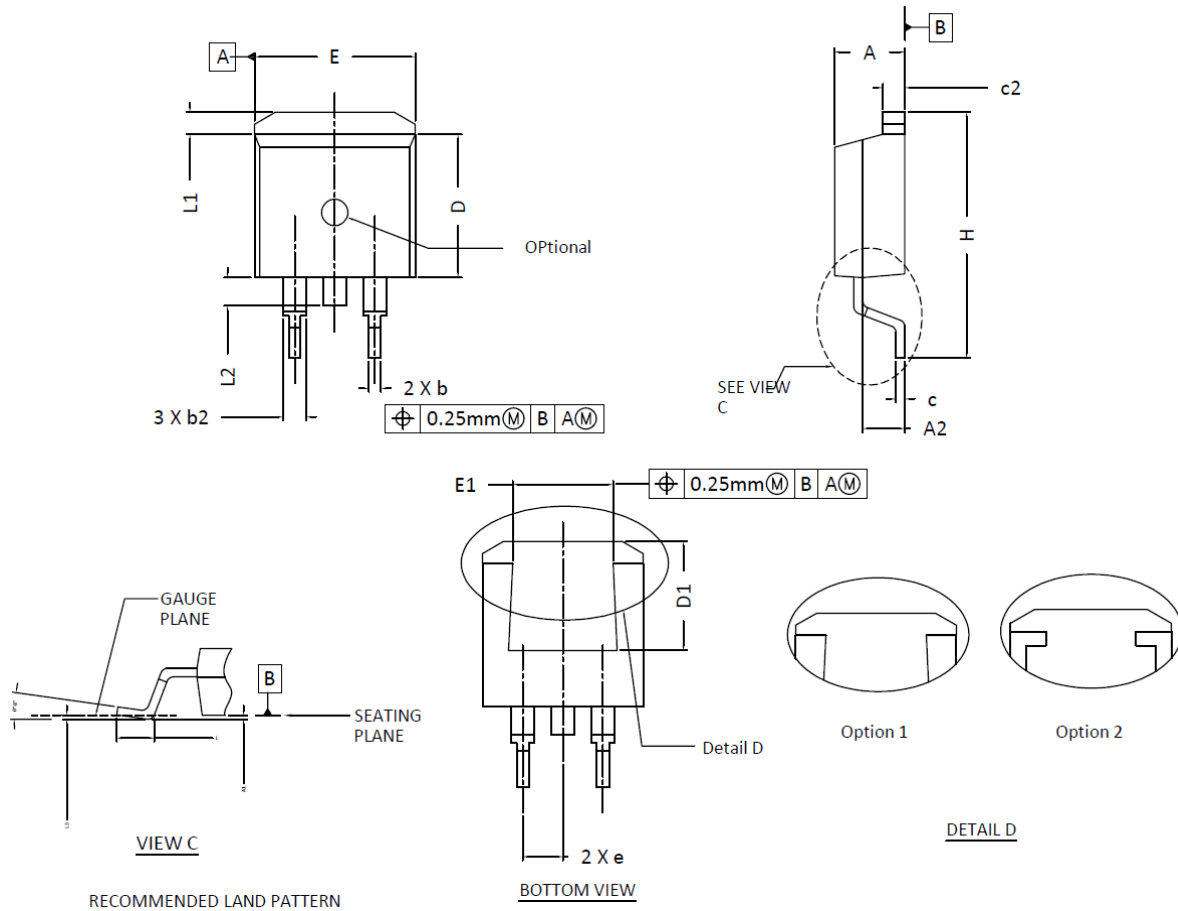


10. Single Pulse Maximum Power Dissipation



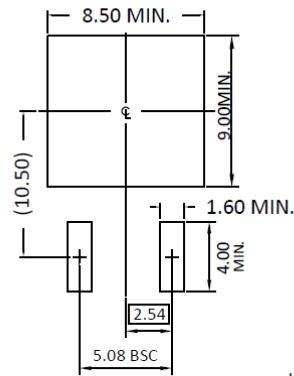
11. Normalized Thermal Transient Junction to Ambient

Package Information



RECOMMENDED LAND PATTERN

BOTTOM VIEW



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.