



## P-Channel 12-V (D-S) MOSFET

### PRODUCT SUMMARY

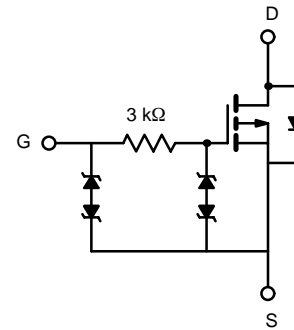
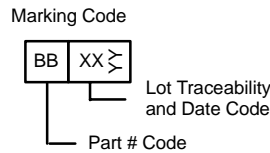
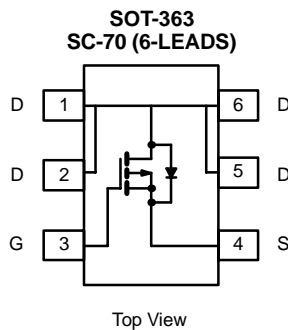
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
-12	0.085 @ $V_{GS} = -4.5$ V	-3.3
	0.115 @ $V_{GS} = -2.5$ V	-2.9
	0.160 @ $V_{GS} = -1.8$ V	-2.4

### FEATURES

- TrenchFET® Power MOSFETS: 1.8-V Rated
- ESD Protected: 3000 V
- Thermally Enhanced SC-70 Package

### APPLICATIONS

- Load Switching
- PA Switch
- Level Switch



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

Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		$V_{DS}$	-12		V
Gate-Source Voltage		$V_{GS}$	$\pm 12$		
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a</sup>	$T_A = 25^\circ\text{C}$	$I_D$	-3.3	-2.7	A
	$T_A = 85^\circ\text{C}$		-2.4	-1.9	
Pulsed Drain Current		$I_{DM}$	-8		
Continuous Diode Current (Diode Conduction) <sup>a</sup>		$I_S$	-1.4	-0.9	W
Maximum Power Dissipation <sup>a</sup>	$T_A = 25^\circ\text{C}$	$P_D$	1.56	1.0	
	$T_A = 85^\circ\text{C}$		0.81	0.52	
Operating Junction and Storage Temperature Range		$T_J, T_{stg}$	-55 to 150		$^\circ\text{C}$

### THERMAL RESISTANCE RATINGS

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient <sup>a</sup>	$t \leq 5$ sec	$R_{thJA}$	60	80	$^\circ\text{C/W}$
	Steady State		100	125	
Maximum Junction-to-Foot (Drain)	Steady State	$R_{thJF}$	34	45	

Notes

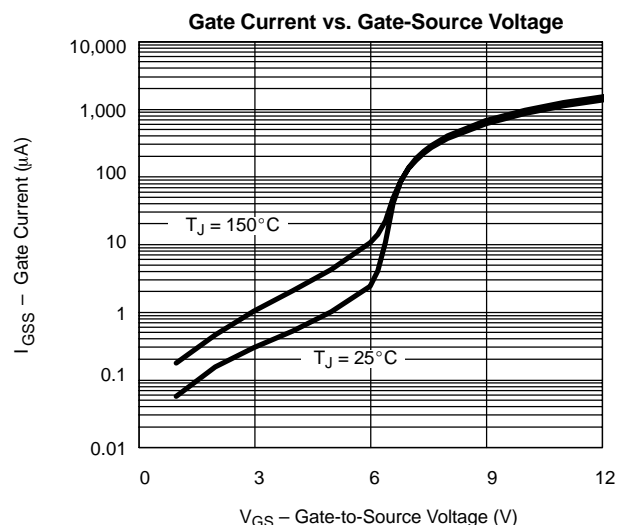
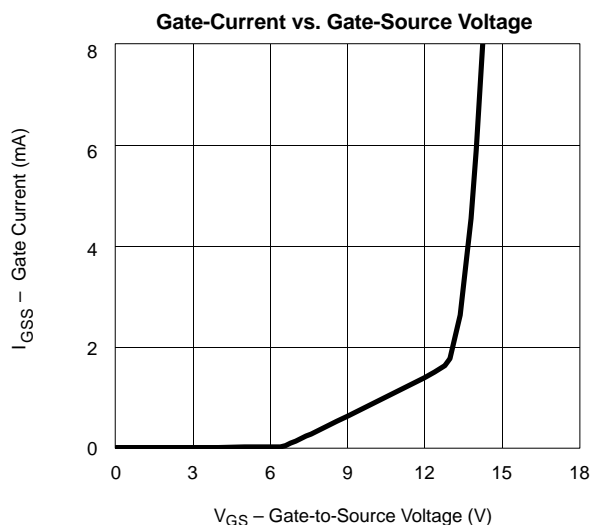
a. Surface Mounted on 1" x 1" FR4 Board.

**SPECIFICATIONS ( $T_J = 25^\circ\text{C}$  UNLESS OTHERWISE NOTED)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-0.45			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 4.5\ \text{V}$			$\pm 1.5$	$\mu\text{A}$
		$V_{DS} = 0\ \text{V}, V_{GS} = \pm 12\ \text{V}$			$\pm 10$	mA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -9.6\ \text{V}, V_{GS} = 0\ \text{V}$			-1	$\mu\text{A}$
		$V_{DS} = -9.6\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 85^\circ\text{C}$			-5	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} = -5\ \text{V}, V_{GS} = -4.5\ \text{V}$	-4			A
Drain-Source On-State Resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = -4.5\ \text{V}, I_D = -3.3\ \text{A}$		0.070	0.085	$\Omega$
		$V_{GS} = -2.5\ \text{V}, I_D = -2.9\ \text{A}$		0.095	0.115	
		$V_{GS} = -1.8\ \text{V}, I_D = -1.0\ \text{A}$		0.133	0.160	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = -10\ \text{V}, I_D = -3.3\ \text{A}$		8		S
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = -1.4\ \text{A}, V_{GS} = 0\ \text{V}$		-0.80	-1.1	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = -6\ \text{V}, V_{GS} = -4.5\ \text{V}, I_D = -3.3\ \text{A}$		5.8	8	nC
Gate-Source Charge	$Q_{gs}$			1.3		
Gate-Drain Charge	$Q_{gd}$			1.5		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -6\ \text{V}, R_L = 6\ \Omega$ $I_D \cong -1\ \text{A}, V_{GEN} = -4.5\ \text{V}, R_G = 6\ \Omega$		0.60	1.0	$\mu\text{s}$
Rise Time	$t_r$			1.4	2.1	
Turn-Off Delay Time	$t_{d(off)}$			4.9	7.5	
Fall Time	$t_f$			4.9	7.5	

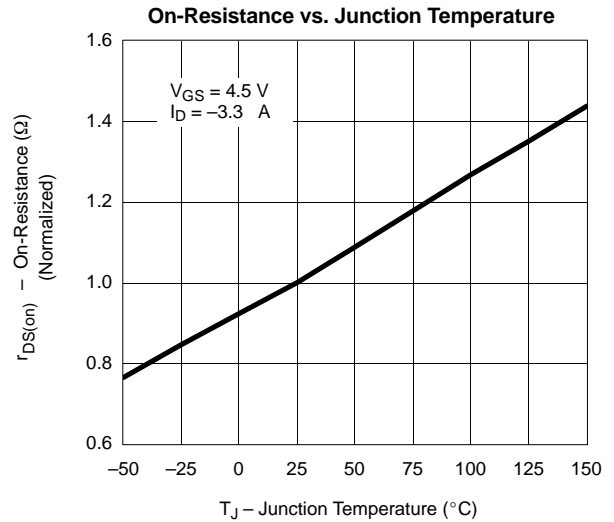
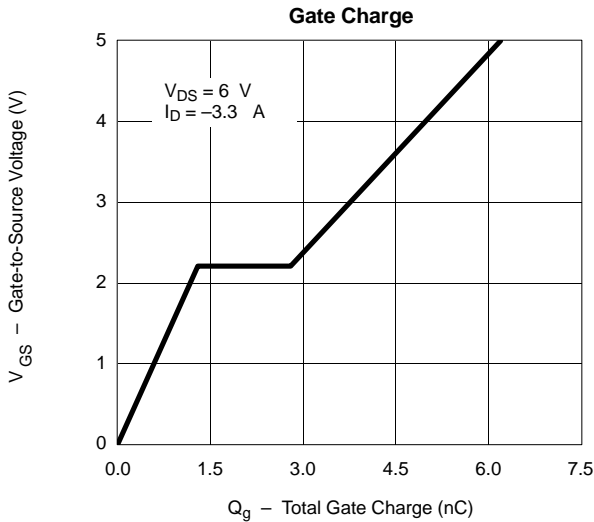
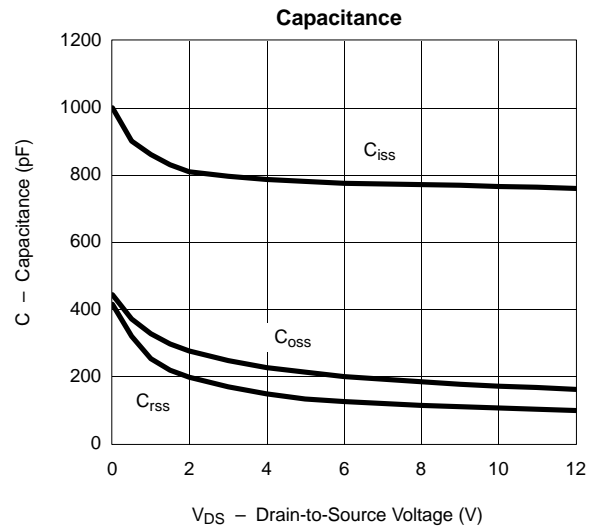
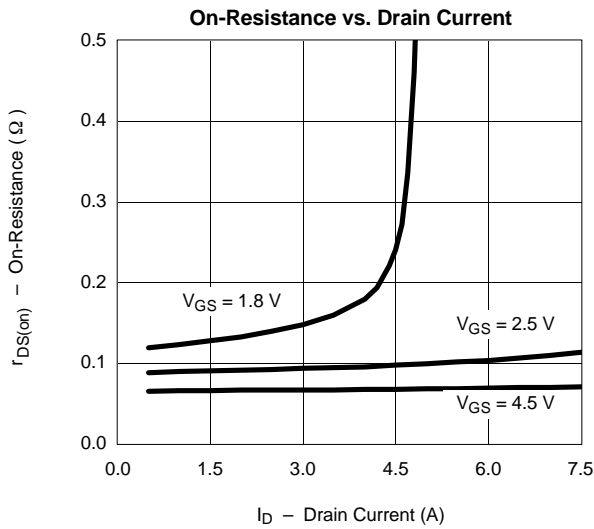
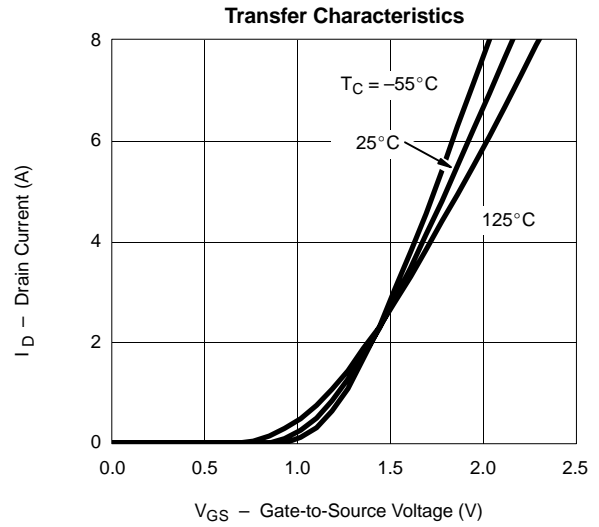
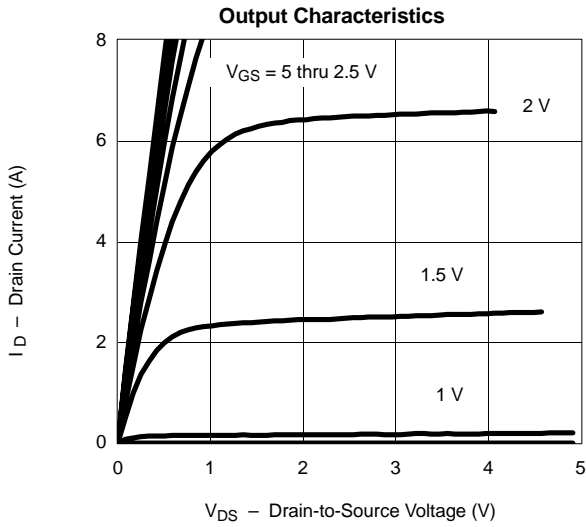
## Notes

- a. Pulse test; pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$ .  
b. Guaranteed by design, not subject to production testing.

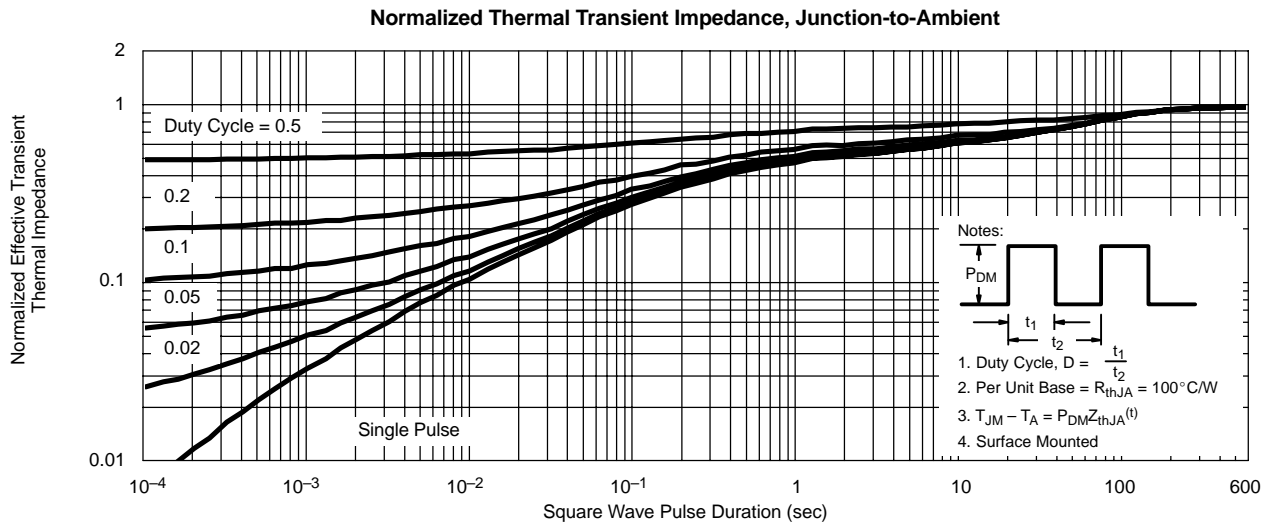
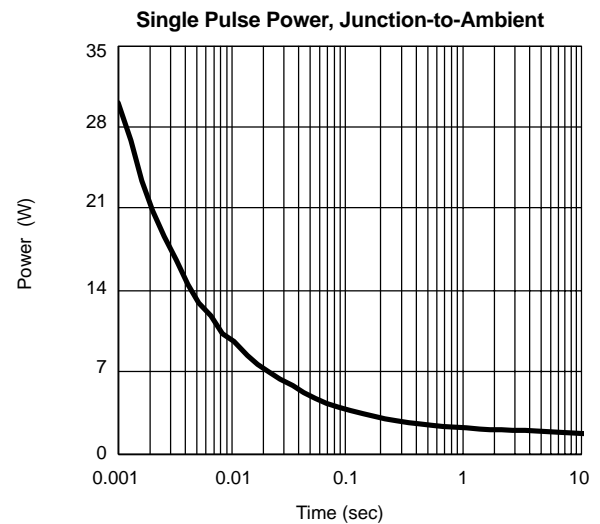
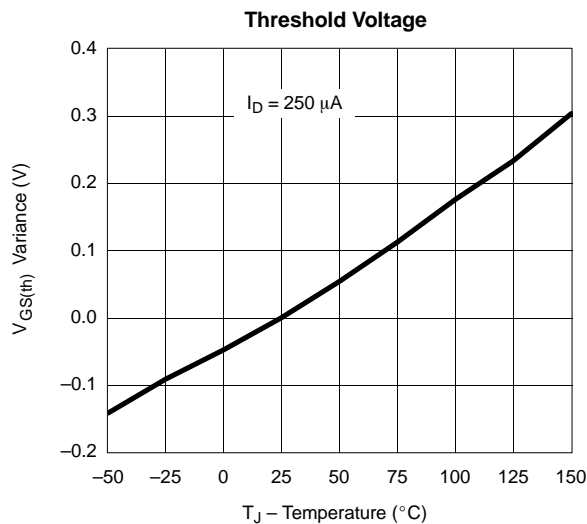
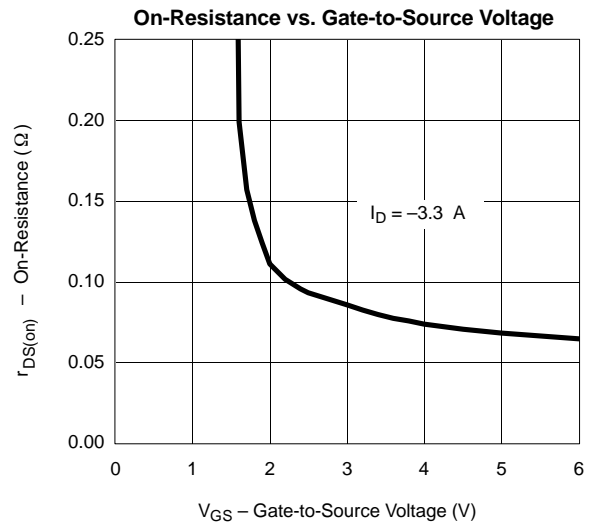
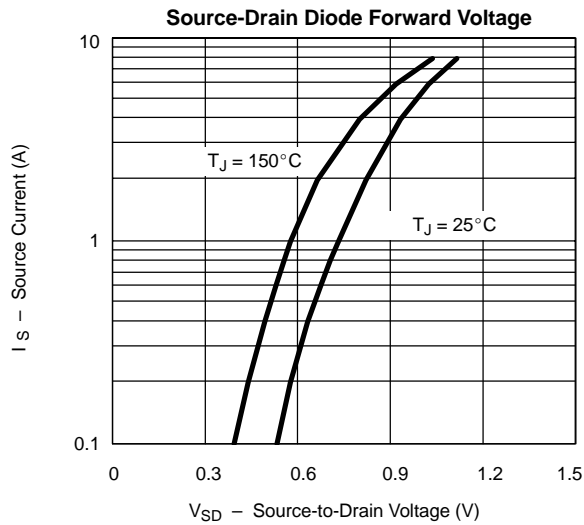
**TYPICAL CHARACTERISTICS ( $25^\circ\text{C}$  UNLESS NOTED)**



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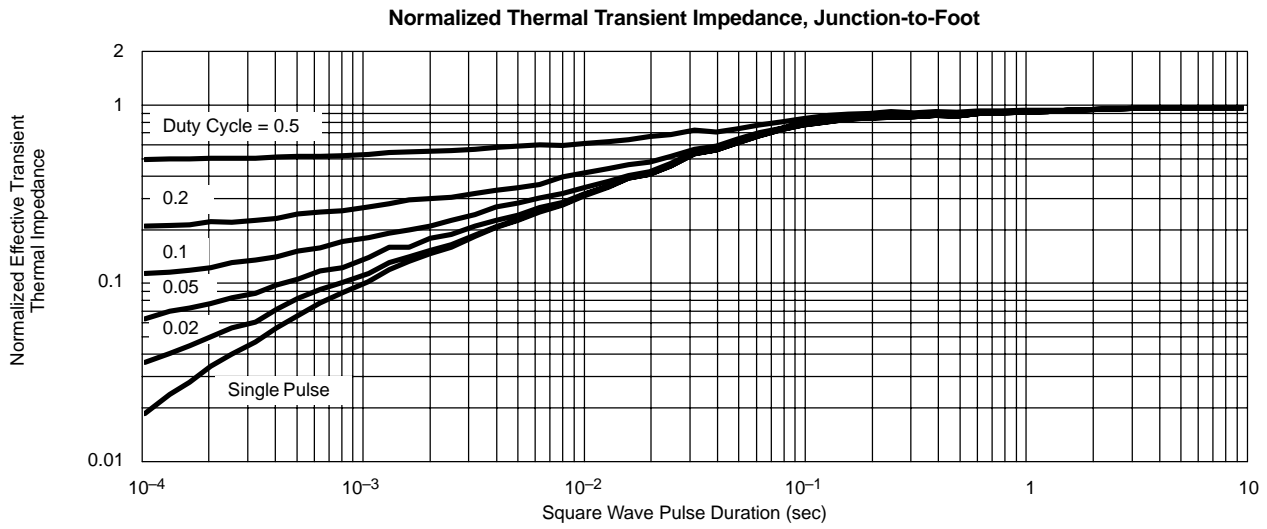


**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**





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