



## Dual N-Channel 20-V (D-S) MOSFET

### PRODUCT SUMMARY

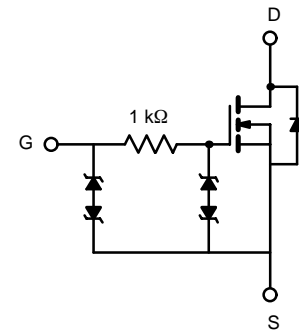
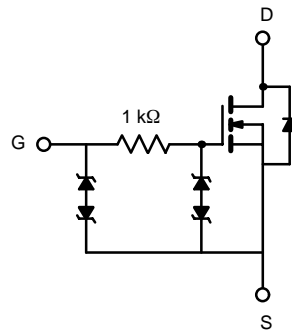
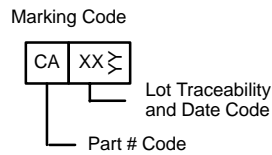
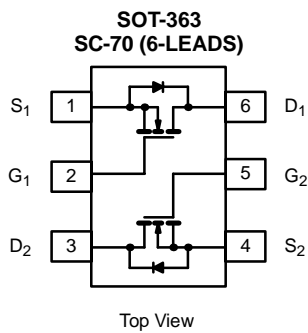
$V_{DS}$ (V)	$r_{DS(on)}$ ( $\Omega$ )	$I_D$ (A)
20	0.280 @ $V_{GS} = 4.5$ V	1.28
	0.360 @ $V_{GS} = 2.5$ V	1.13
	0.450 @ $V_{GS} = 1.8$ V	1.0

### FEATURES

- TrenchFET® Power MOSFETS: 1.8-V Rated
- ESD Protected: 2000 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	$V_{DS}$	20		V	
Gate-Source Voltage	$V_{GS}$	$\pm 12$			
Continuous Drain Current ( $T_J = 150^\circ\text{C}$ ) <sup>a</sup>	$I_D$	$T_A = 25^\circ\text{C}$	1.28	1.13	A
		$T_A = 85^\circ\text{C}$	0.92	0.81	
Pulsed Drain Current	$I_{DM}$	4			
Continuous Diode Current (Diode Conduction) <sup>a</sup>	$I_S$	0.61	0.48		
Maximum Power Dissipation <sup>a</sup>	$P_D$	$T_A = 25^\circ\text{C}$	0.74	0.57	W
		$T_A = 85^\circ\text{C}$	0.38	0.30	
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>	$R_{thJA}$	$t \leq 5$ sec	130	170	$^\circ\text{C/W}$
		Steady State	170	220	
Maximum Junction-to-Foot (Drain)	$R_{thJF}$	80	100		

Notes

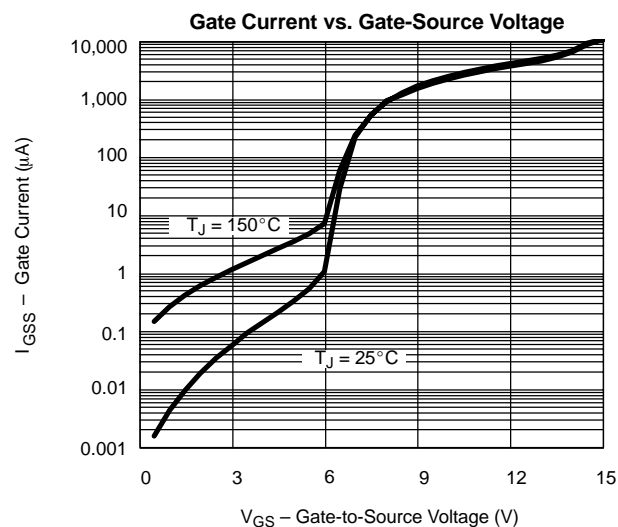
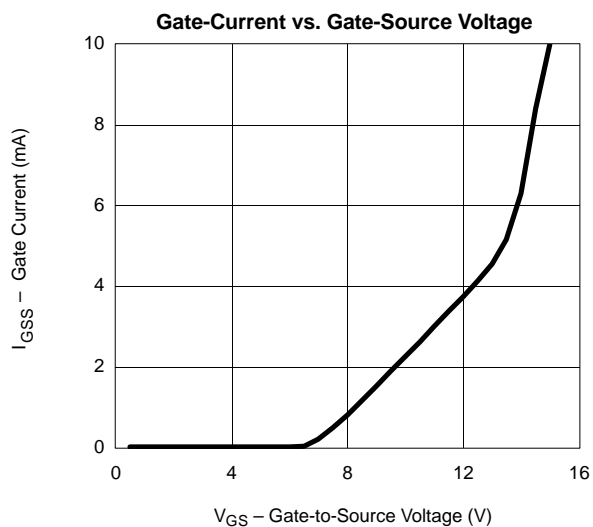
a. Surface Mounted on 1" x 1" FR4 Board.

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 100\ \mu\text{A}$	0.45			V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\ \text{V}, V_{GS} = \pm 4.5\ \text{V}$			$\pm 1$	$\mu\text{A}$
		$V_{DS} = 0\ \text{V}, V_{GS} = \pm 12\ \text{V}$			$\pm 10$	mA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 16\ \text{V}, V_{GS} = 0\ \text{V}$			1	$\mu\text{A}$
		$V_{DS} = 16\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 85^\circ\text{C}$			5	
On-State Drain Current <sup>a</sup>	$I_{D(on)}$	$V_{DS} = 5\ \text{V}, V_{GS} = 4.5\ \text{V}$	2			A
Drain-Source On-State Resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = 4.5\ \text{V}, I_D = 1.13\ \text{A}$		0.220	0.280	$\Omega$
		$V_{GS} = 2.5\ \text{V}, I_D = 0.99\ \text{A}$		0.281	0.360	
		$V_{GS} = 1.8\ \text{V}, I_D = 0.2\ \text{A}$		0.344	0.450	
Forward Transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 10\ \text{V}, I_D = 1.13\ \text{A}$		2.6		S
Diode Forward Voltage <sup>a</sup>	$V_{SD}$	$I_S = 0.48\ \text{A}, V_{GS} = 0\ \text{V}$		0.80	1.2	V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	$Q_g$	$V_{DS} = 10\ \text{V}, V_{GS} = 4.5\ \text{V}, I_D = 1.13\ \text{A}$		0.65	1.0	nC
Gate-Source Charge	$Q_{gs}$			0.2		
Gate-Drain Charge	$Q_{gd}$			0.23		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10\ \text{V}, R_L = 20\ \Omega$ $I_D \cong 0.5\ \text{A}, V_{GEN} = 4.5\ \text{V}, R_G = 6\ \Omega$		45	70	ns
Rise Time	$t_r$			85	130	
Turn-Off Delay Time	$t_{d(off)}$			350	530	
Fall Time	$t_f$			210	320	

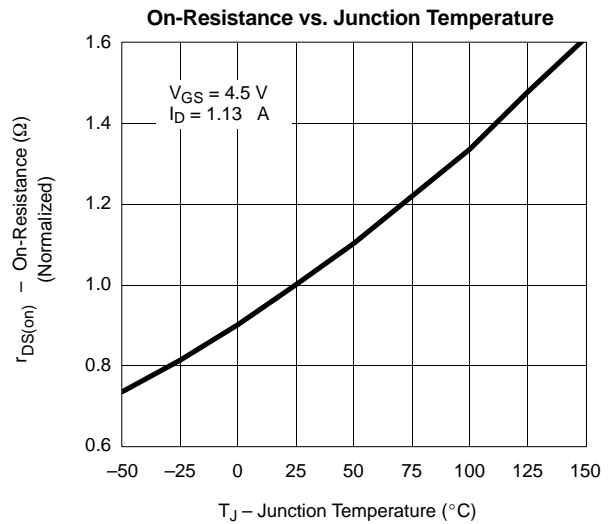
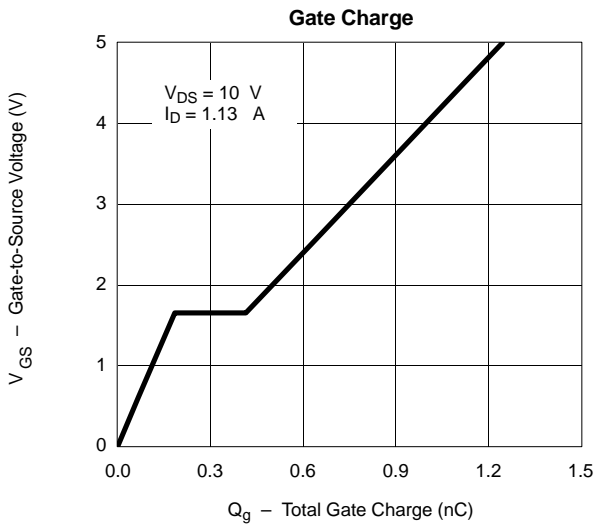
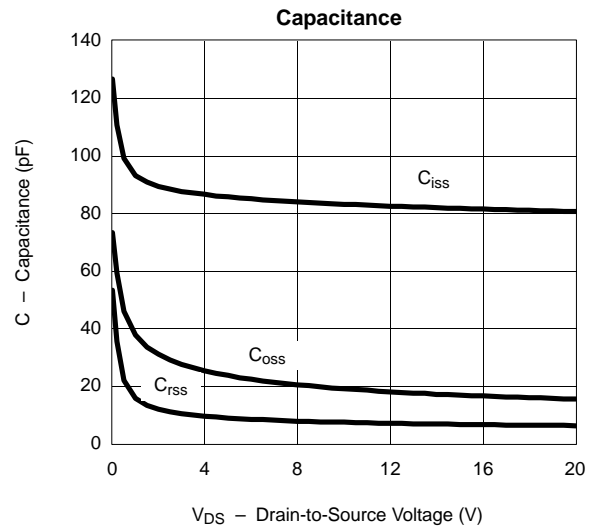
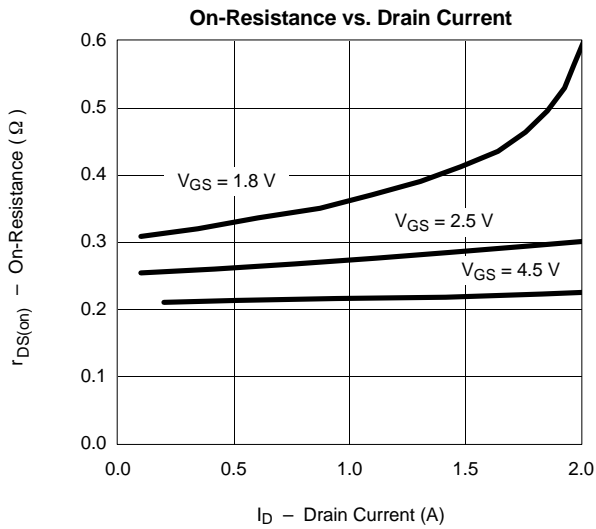
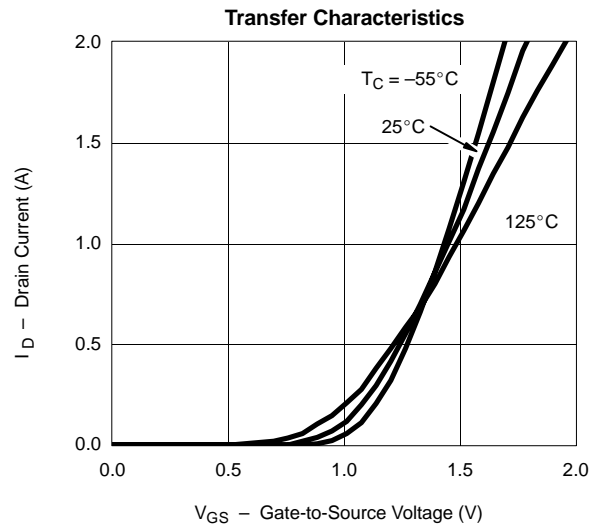
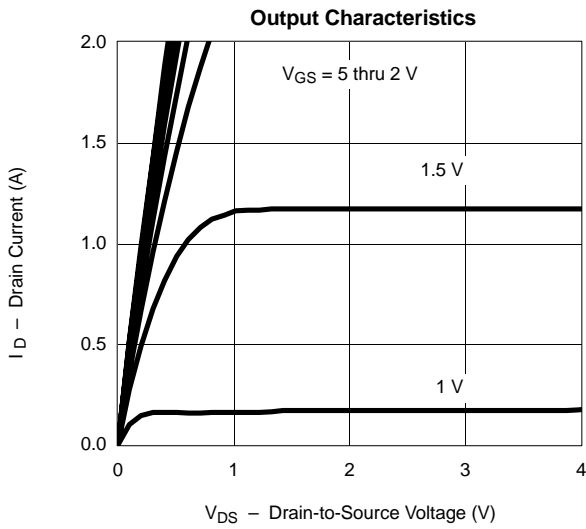
## Notes

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

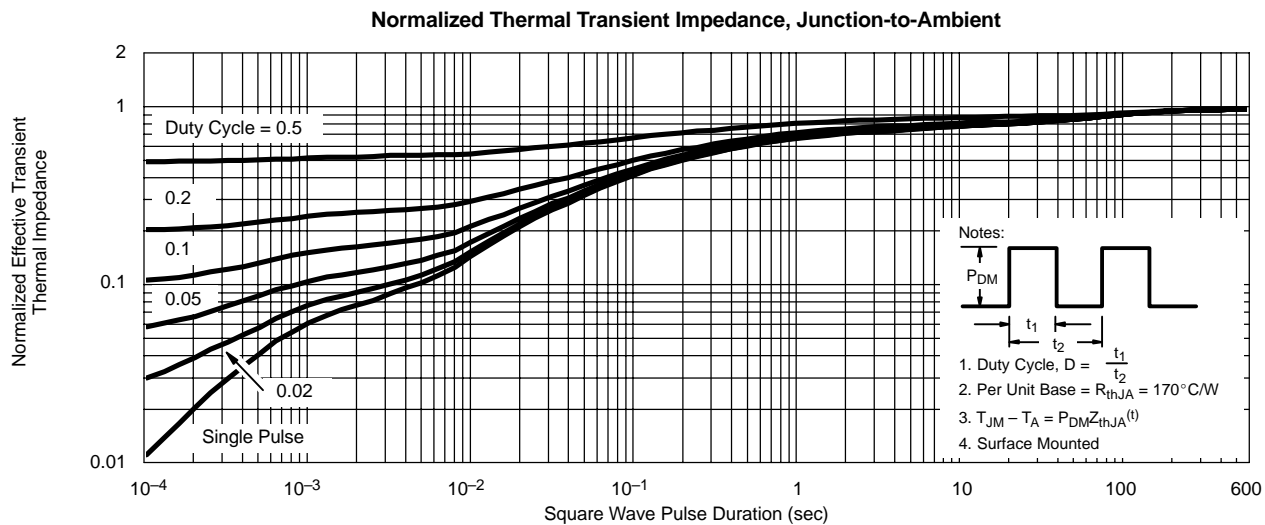
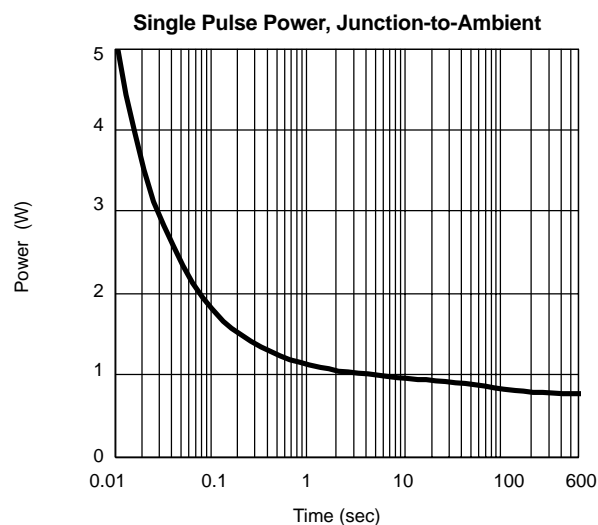
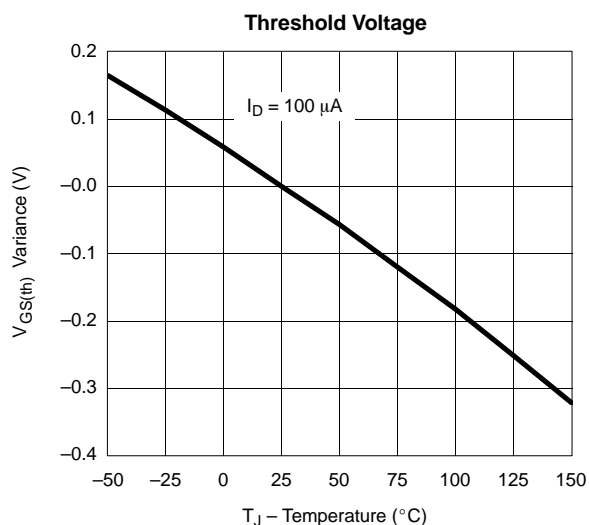
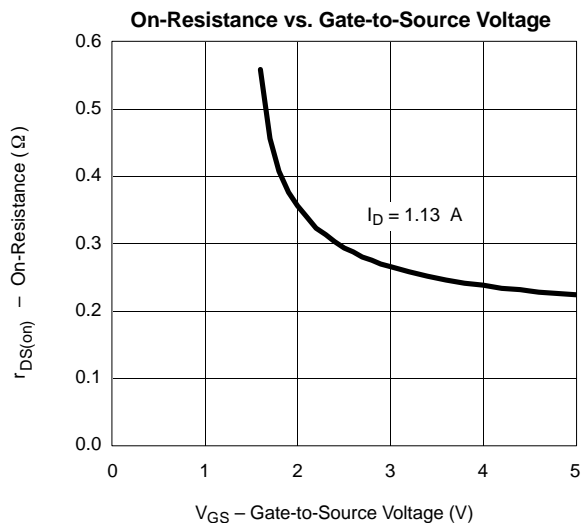
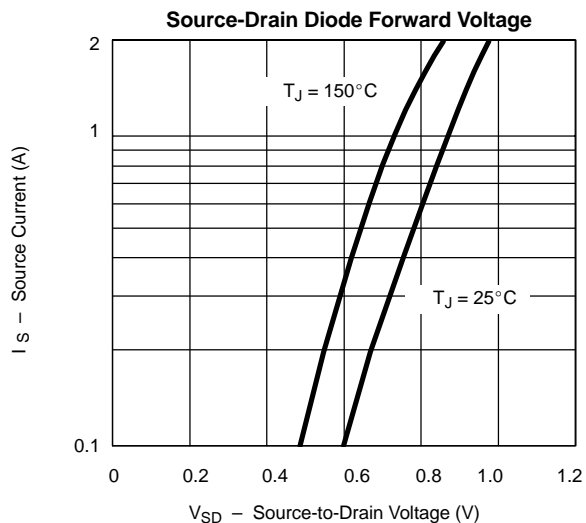
**TYPICAL CHARACTERISTICS ( $25^\circ\text{C}$  UNLESS NOTED)**



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