

N-Channel 30-V (D-S) MOSFET

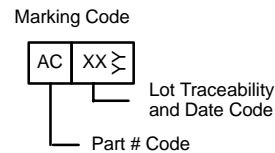
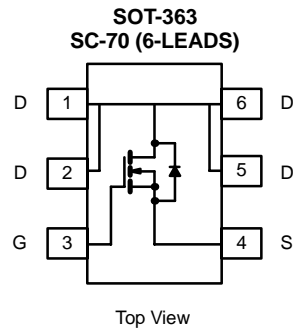
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.075 @ $V_{GS} = 10$ V	3.6
	0.115 @ $V_{GS} = 4.5$ V	2.9

FEATURES

- TrenchFET® Power MOSFET
- Thermally Enhanced SC-70 Package
- PWM Optimized

APPLICATIONS

- Boost Converter in Portable Devices
 - Low Gate Charge (3 nC)
- Low Current Synchronous Rectifier



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)					
Parameter	Symbol	5 secs	Steady State	Unit	
Drain-Source Voltage	V_{DS}	30		V	
Gate-Source Voltage	V_{GS}	± 20			
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^a	I_D	$T_A = 25^\circ\text{C}$	3.6	2.8	A
		$T_A = 85^\circ\text{C}$	2.6	2.1	
Pulsed Drain Current	I_{DM}	10			
Continuous Diode Current (Diode Conduction) ^a	I_S	1.3	0.8		
Maximum Power Dissipation ^a	P_D	$T_A = 25^\circ\text{C}$	1.6	1.0	W
		$T_A = 85^\circ\text{C}$	0.8	0.5	
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 ^a	R_{thJA}	$t \leq 5$ sec	60	80	$^\circ\text{C/W}$
		Steady State	100	125	
Maximum Junction-to-Foot (Drain)	R_{thJF}	34	45		

Notes

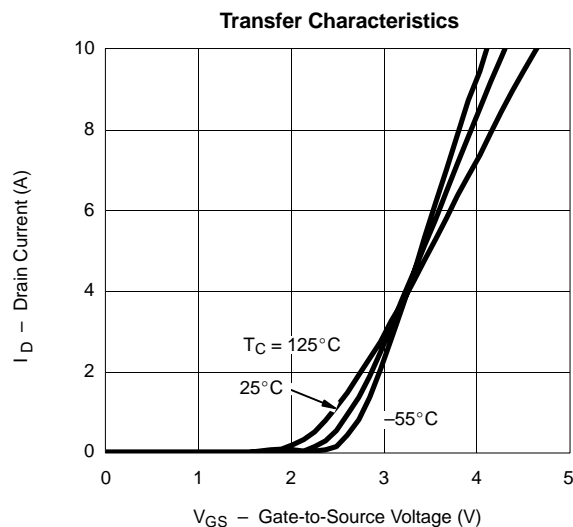
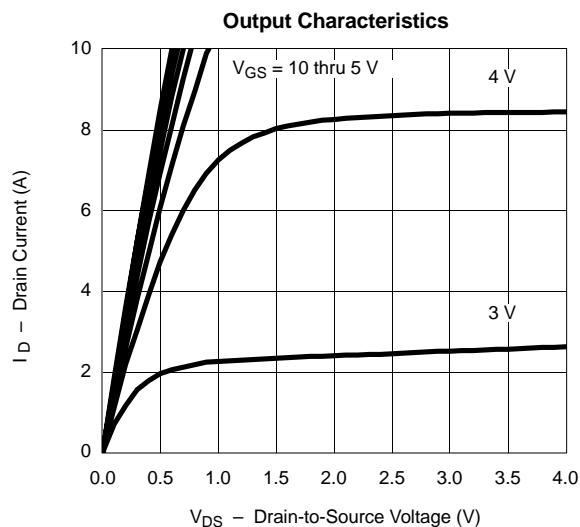
a. Surface Mounted on 1" x 1" FR4 Board.

SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)

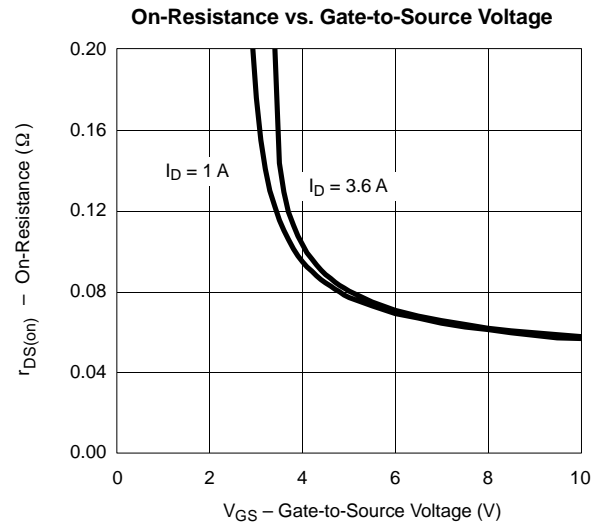
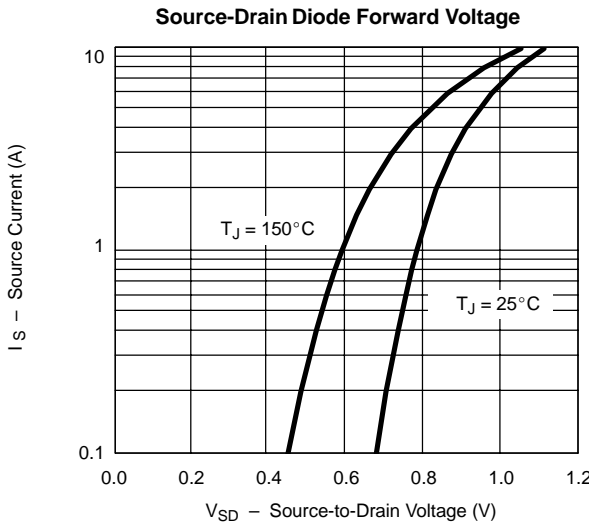
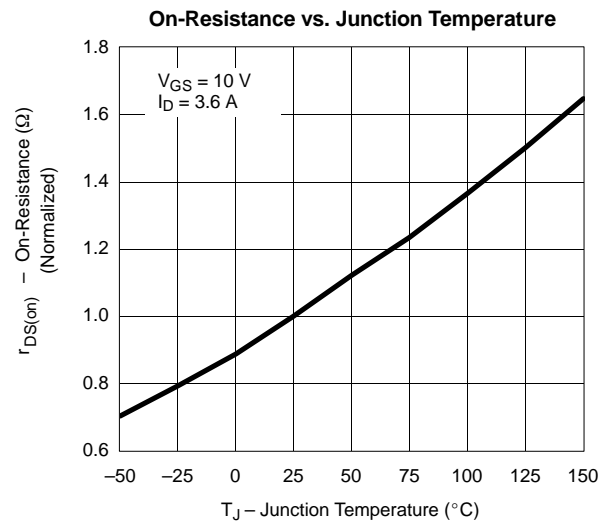
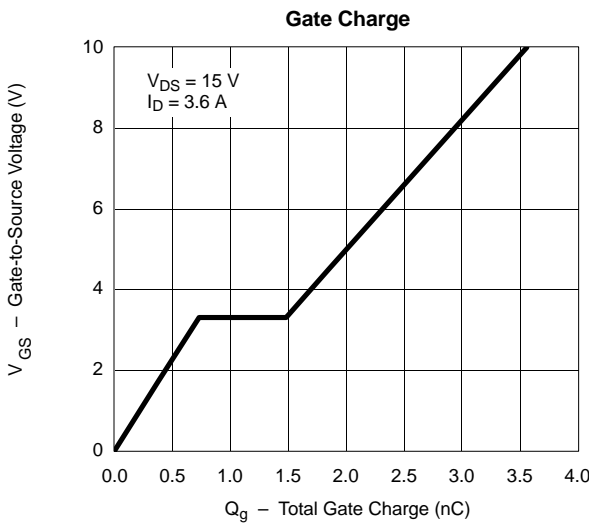
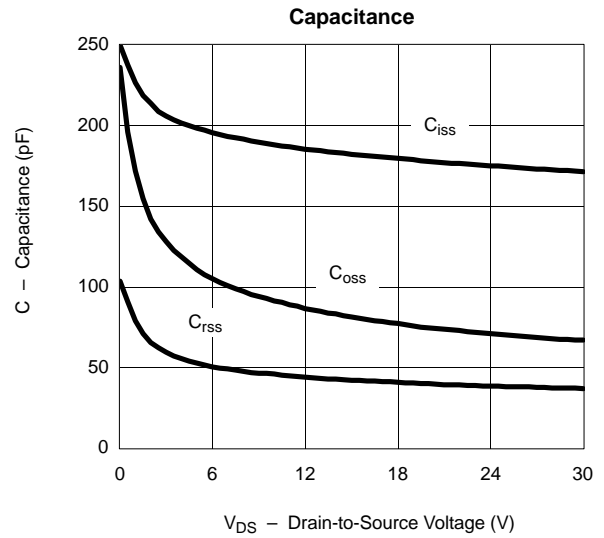
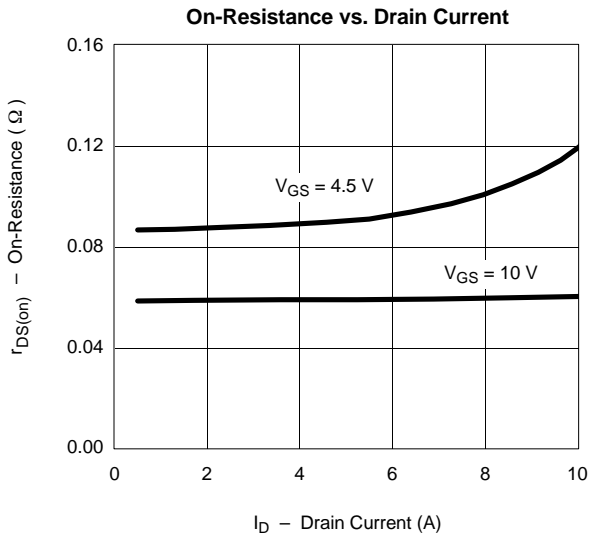
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.80		2.5	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24 V, V _{GS} = 0 V			1	μA
		V _{DS} = 24 V, V _{GS} = 0 V, T _J = 85 °C			5	
On-State Drain Current ^a	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 10 V	10			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 3.6 A		0.061	0.075	Ω
		V _{GS} = 4.5 V, I _D = 2.0 A		0.092	0.115	
Forward Transconductance ^a	g _{fs}	V _{DS} = 10 V, I _D = 3.6 A		5		S
Diode Forward Voltage ^a	V _{SD}	I _S = 1.3 A, V _{GS} = 0 V		0.78	1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 3.6 A		1.9	3	nC
Gate-Source Charge	Q _{gs}			0.75		
Gate-Drain Charge	Q _{gd}			0.75		
Turn-On Delay Time	t _{d(on)}	V _{DD} = 15 V, R _L = 15 Ω I _D ≅ 1 A, V _{GEN} = 10 V, R _G = 6 Ω		10	15	ns
Rise Time	t _r			12	18	
Turn-Off Delay Time	t _{d(off)}			15	22	
Fall Time	t _f			9	15	
Source-Drain Reverse Recovery	t _{rr}		I _F = 1.4 A, di/dt = 100/μs		40	

Notes

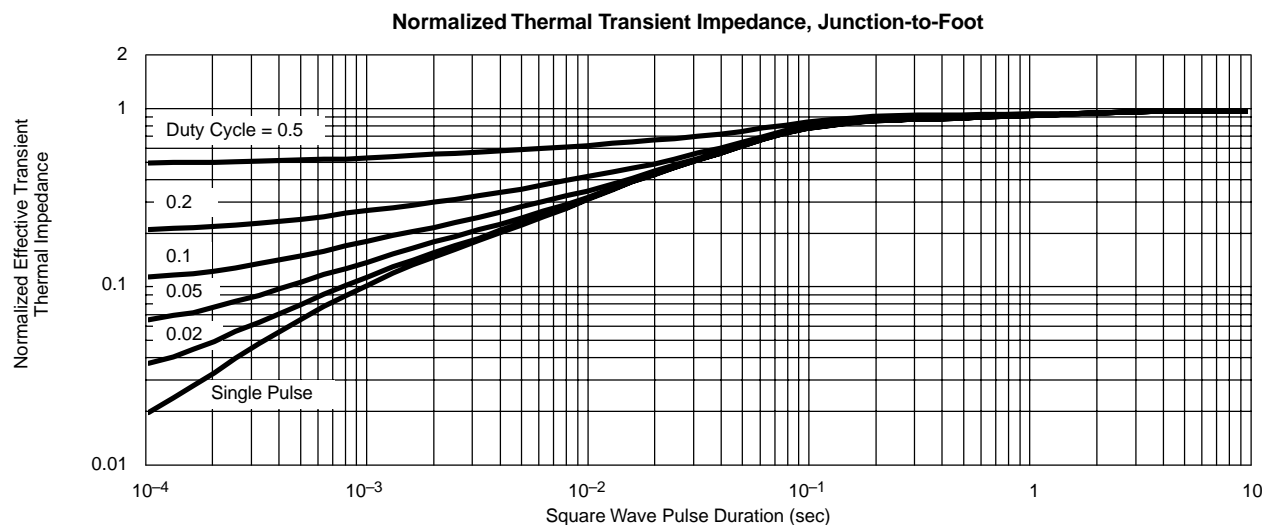
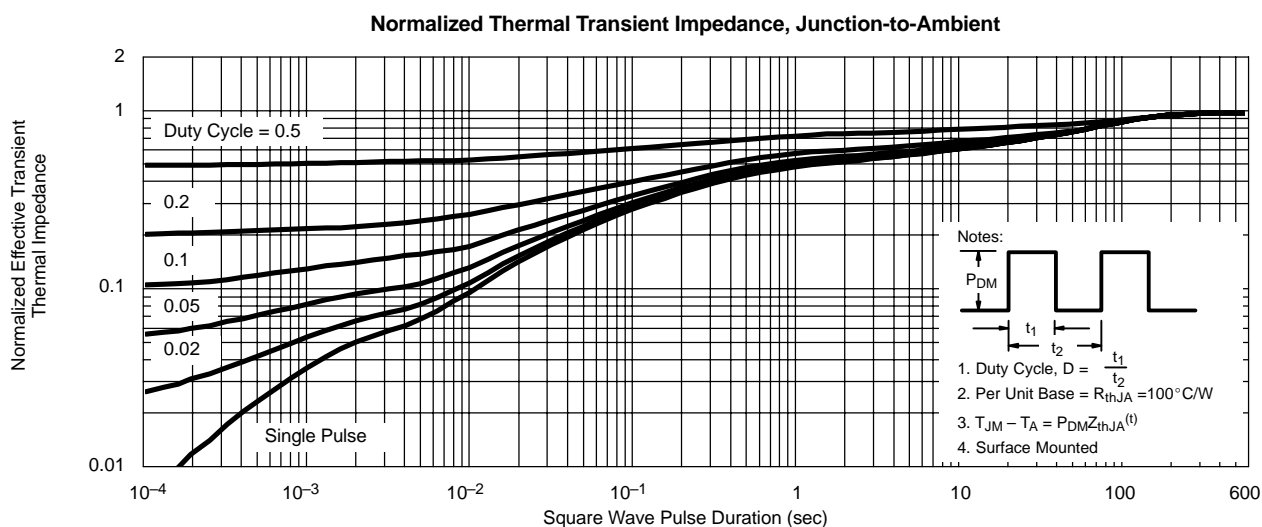
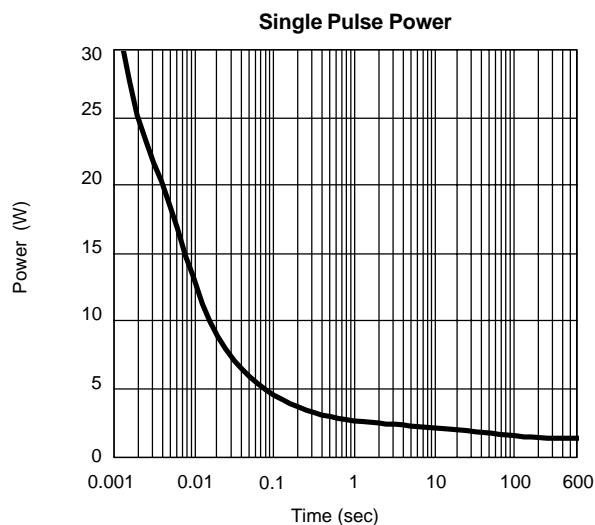
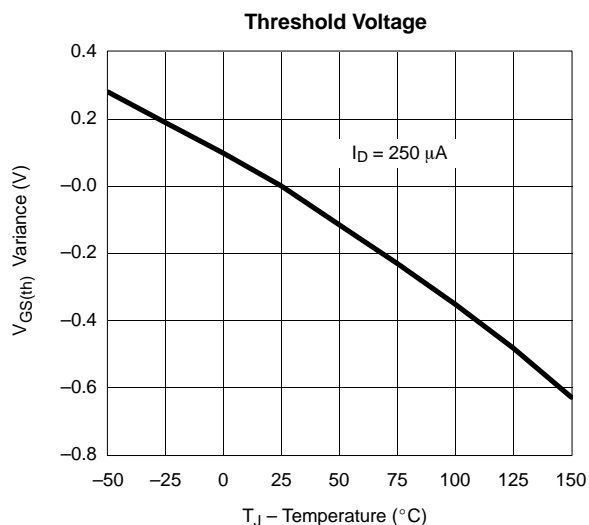
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

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