



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

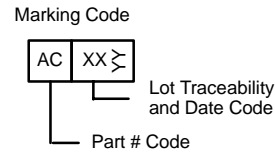
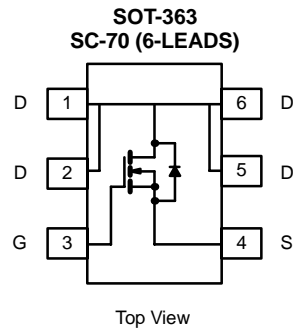
PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
30	0.075 @ V _{GS} = 10 V	3.6
	0.115 @ V _{GS} = 4.5 V	2.9

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°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°C) ^a	I _D	T _A = 25°C	3.6	2.8	A
		T _A = 85°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°C	1.6	1.0	W
		T _A = 85°C	0.8	0.5	
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 150		°C	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Maximum Junction-to-Ambient ^a	R _{thJA}	t ≤ 5 sec	60	80	°C/W
		Steady State	100	125	
Maximum Junction-to-Foot (Drain)	R _{thJF}	34	45		

Notes

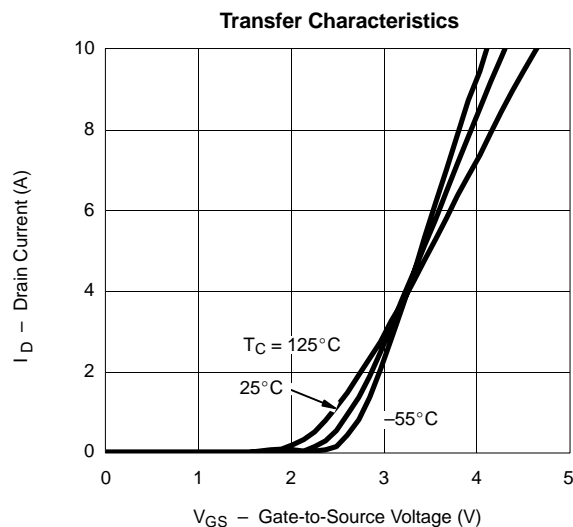
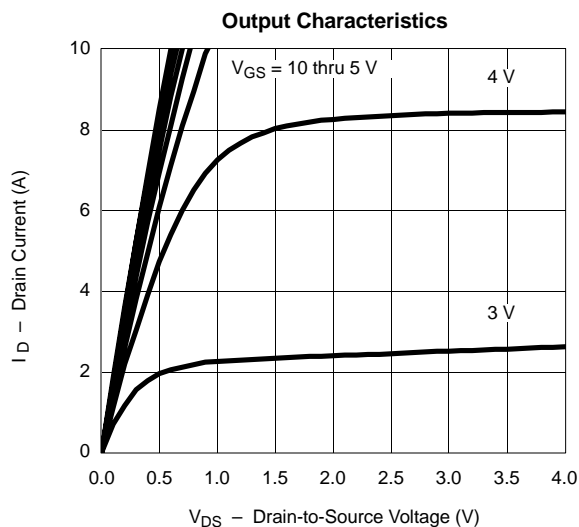
a. Surface Mounted on 1" x 1" FR4 Board.

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	0.80		2.5	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}$			1	μA
		$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 85^\circ\text{C}$			5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = 10 \text{ V}$	10			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = 10 \text{ V}, I_D = 3.6 \text{ A}$		0.061	0.075	Ω
		$V_{GS} = 4.5 \text{ V}, I_D = 2.0 \text{ A}$		0.092	0.115	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 10 \text{ V}, I_D = 3.6 \text{ A}$		5		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 1.3 \text{ A}, V_{GS} = 0 \text{ V}$		0.78	1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 15 \text{ V}, V_{GS} = 4.5 \text{ V}, I_D = 3.6 \text{ A}$		1.9	3	nC
Gate-Source Charge	Q_{gs}			0.75		
Gate-Drain Charge	Q_{gd}			0.75		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15 \text{ V}, R_L = 15 \Omega$ $I_D \cong 1 \text{ A}, V_{GEN} = 10 \text{ V}, R_G = 6 \Omega$		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}		$I_F = 1.4 \text{ A}, di/dt = 100/\mu\text{s}$		40	

Notes

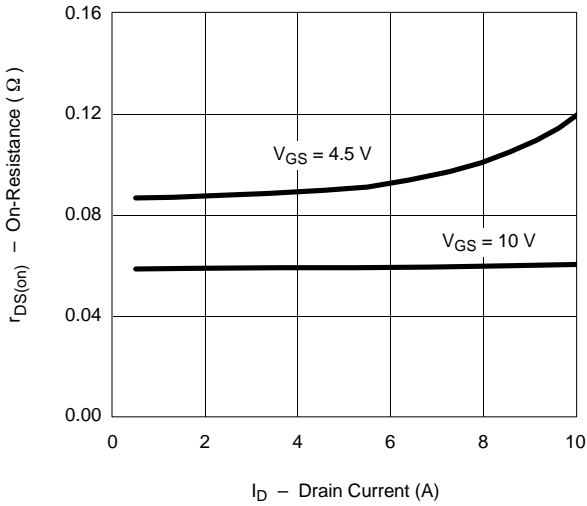
- a. Pulse test; pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

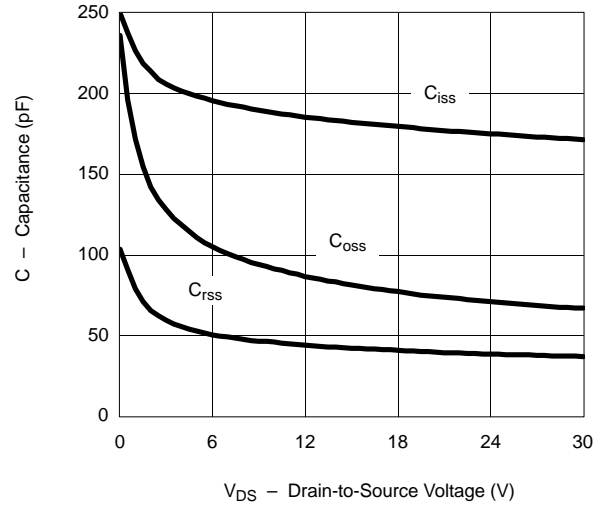


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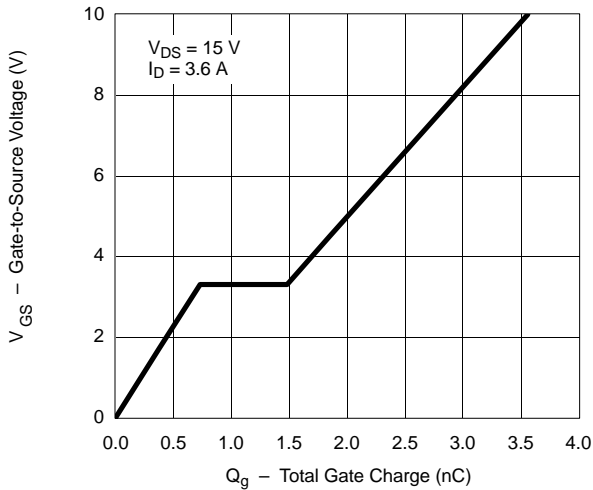
On-Resistance vs. Drain Current



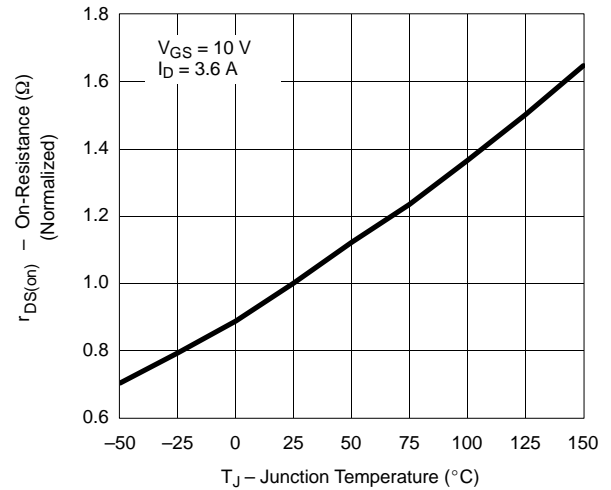
Capacitance



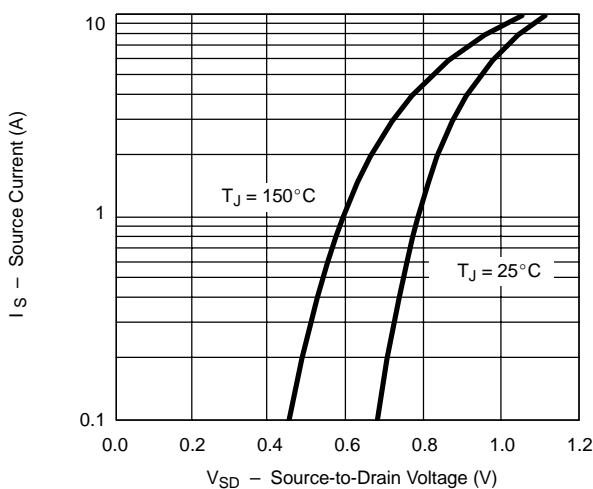
Gate Charge



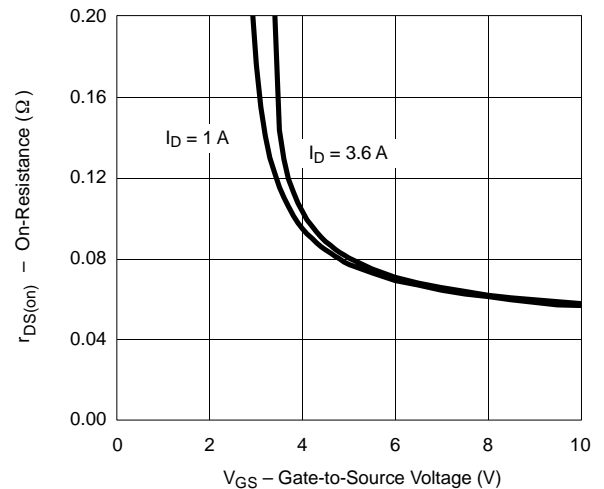
On-Resistance vs. Junction Temperature



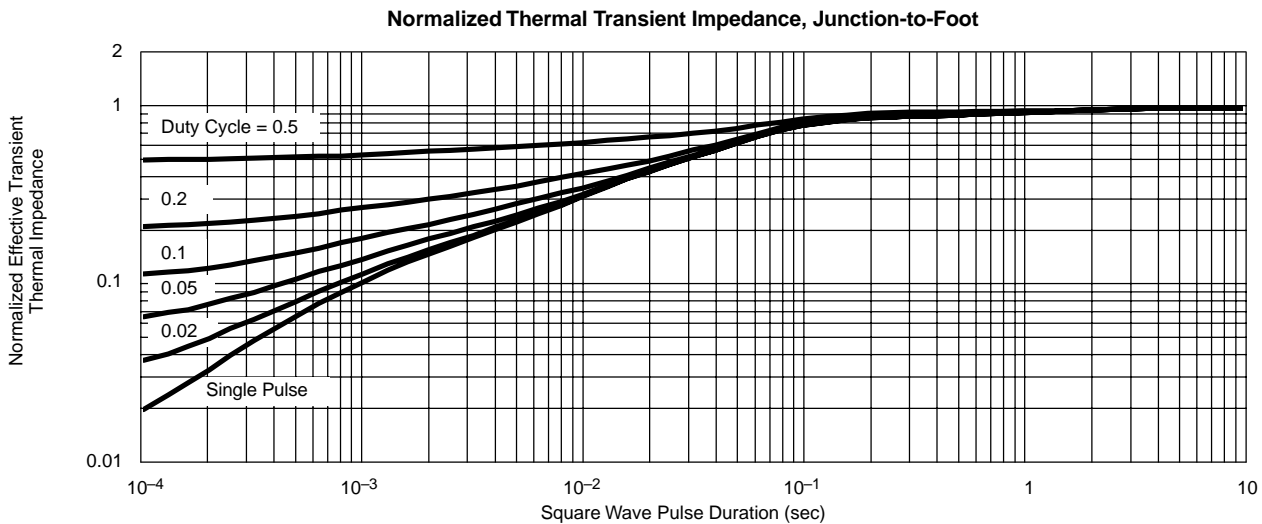
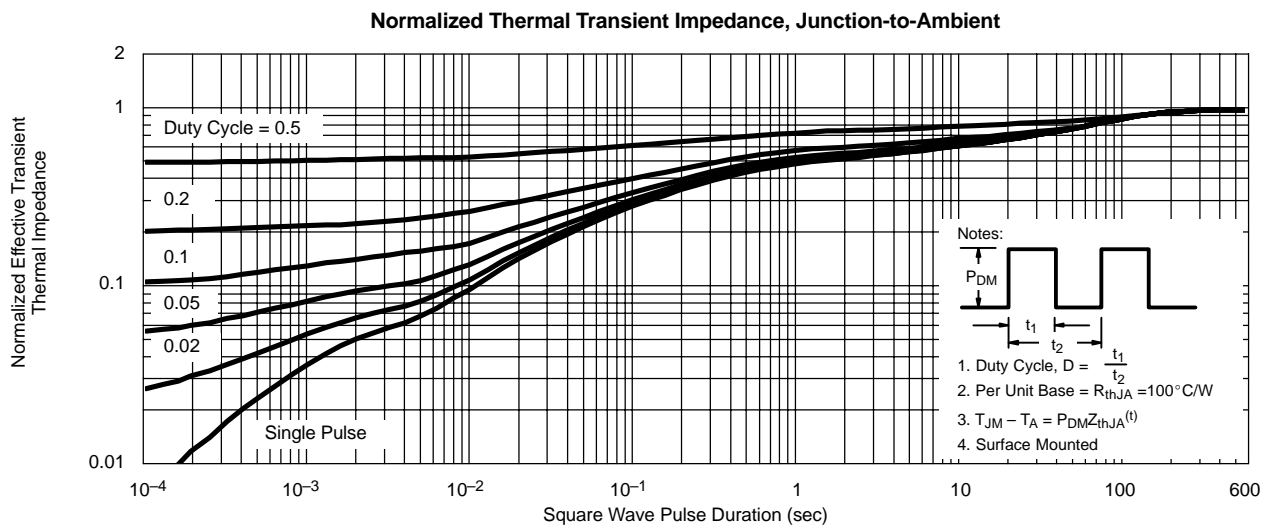
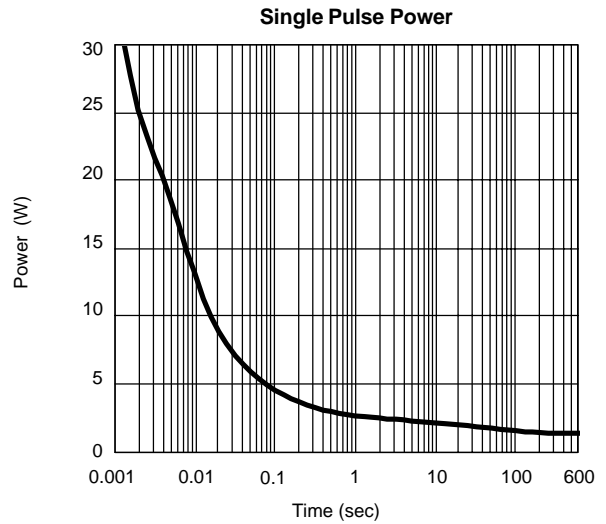
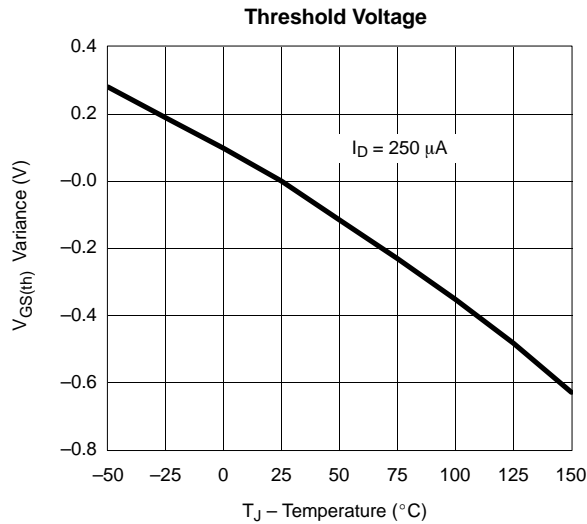
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





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