



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

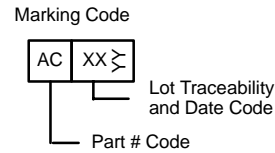
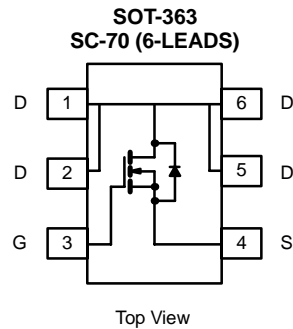
PRODUCT SUMMARY		
V _{DS} (V)	r _{DS(on)} (Ω)	I _D (A)
30	0.075 @ V _{GS} = 10 V	3.6
	0.115 @ V _{GS} = 4.5 V	2.9

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	A
		T _A = 85°C	2.6	
Pulsed Drain Current	I _{DM}	10		A
Continuous Diode Current (Diode Conduction) ^a	I _S	1.3	0.8	
Maximum Power Dissipation ^a	P _D	T _A = 25°C	1.6	W
		T _A = 85°C	0.8	
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	°C/W
		Steady State	100	
Maximum Junction-to-Foot (Drain)	R _{thJF}	34	45	

Notes

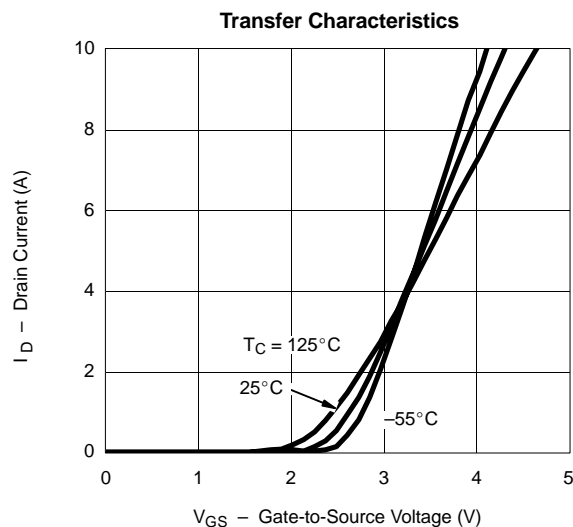
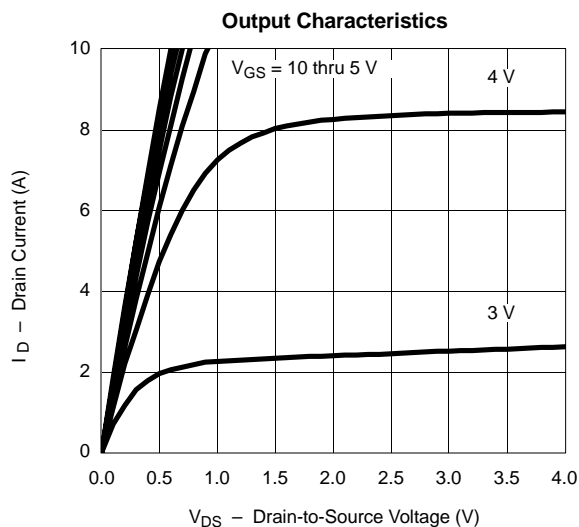
a. Surface Mounted on 1" x 1" FR4 Board.

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

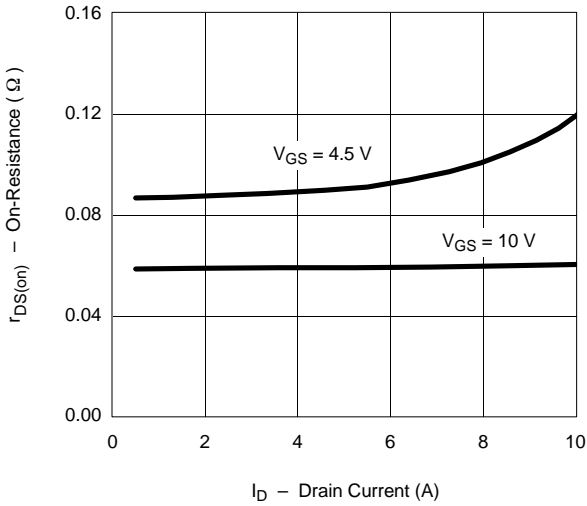
- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

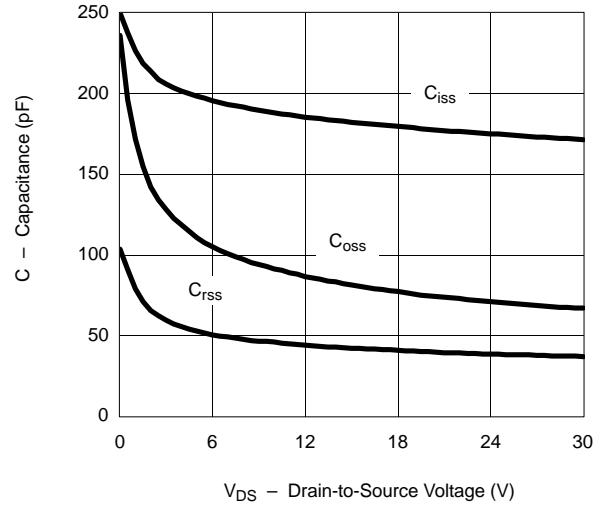


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

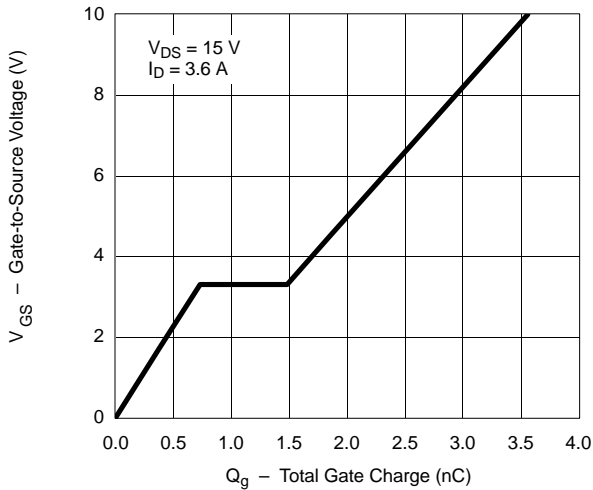
On-Resistance vs. Drain Current



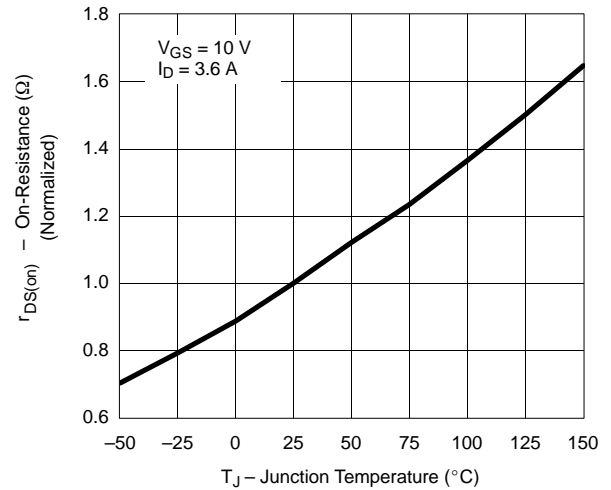
Capacitance



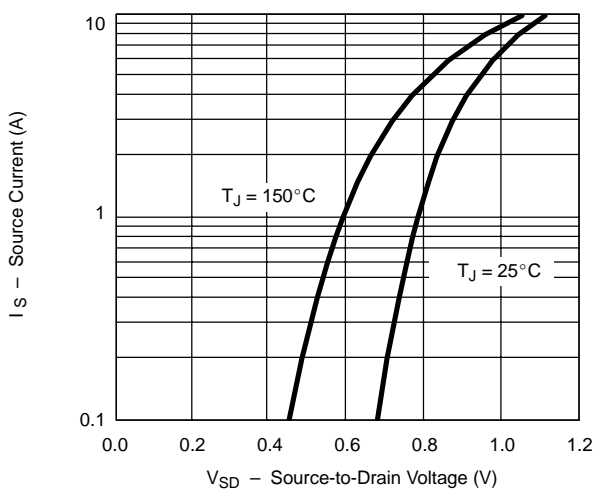
Gate Charge



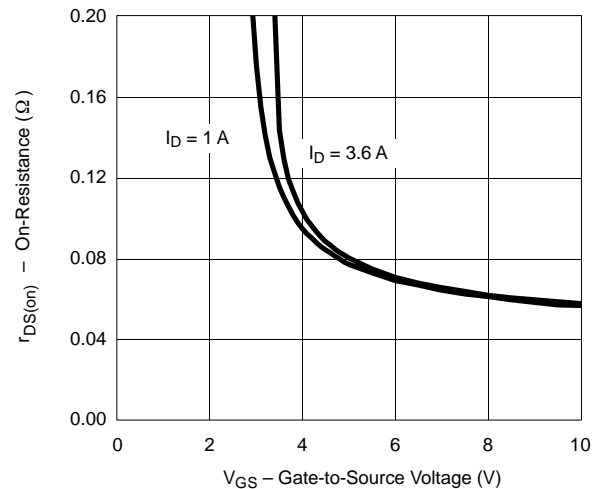
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)

