



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

PRODUCT SUMMARY

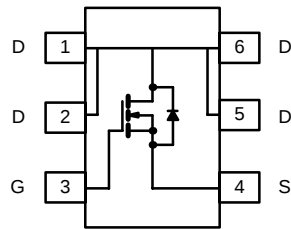
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
30	0.075 @ $V_{GS} = 10$ V	3.6
	0.115 @ $V_{GS} = 4.5$ V	2.9

FEATURES

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

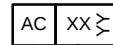
APPLICATIONS

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

SOT-363
SC-70 (6-LEADS)

Top View

Marking Code

Lot Traceability
and Date Code

Part # Code

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°C) ^a	T _A = 25°C	I _D	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	T _A = 25°C	P _D	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	$t \leq 5$ 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

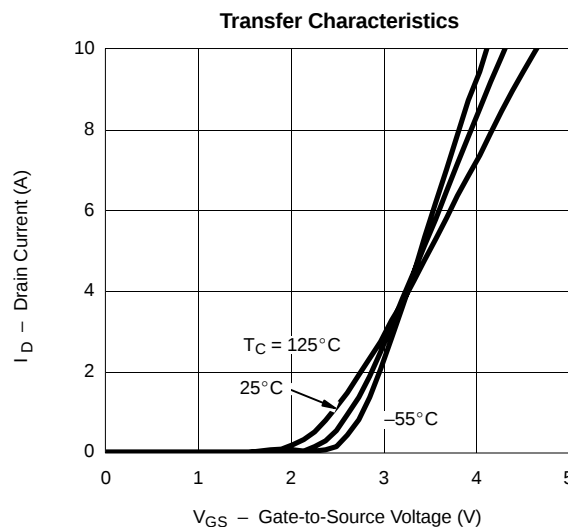
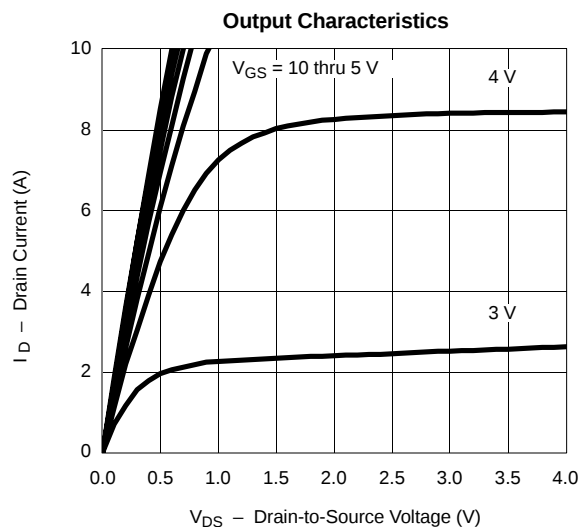
a. Surface Mounted on 1" x 1" FR4 Board.

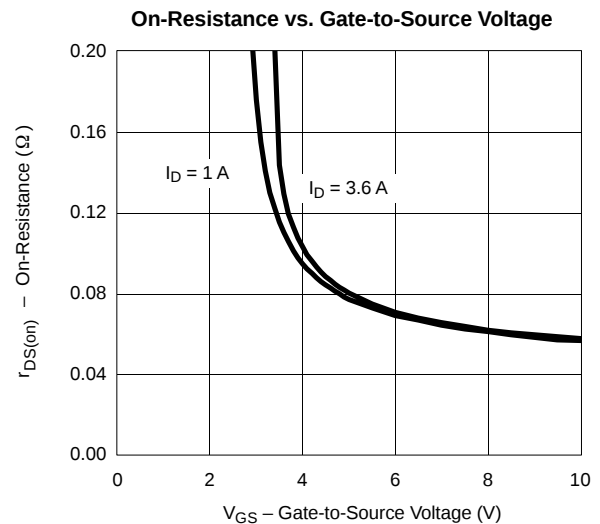
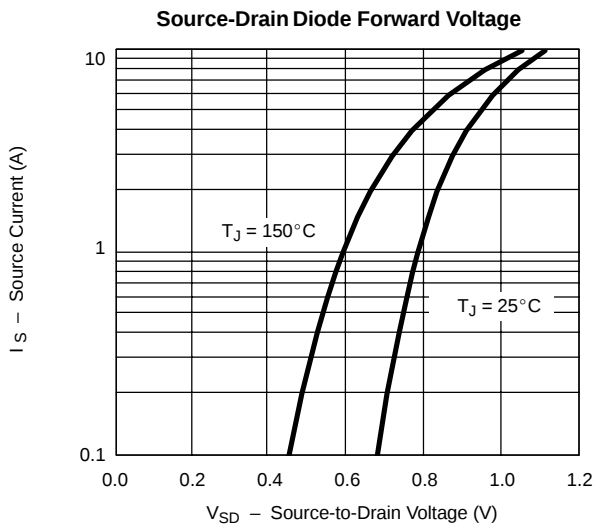
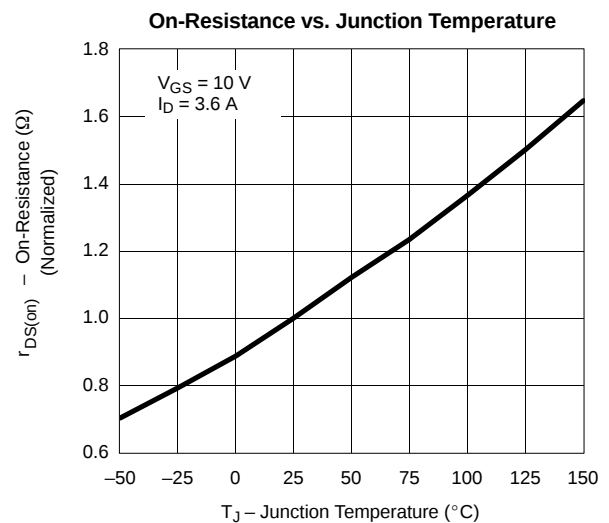
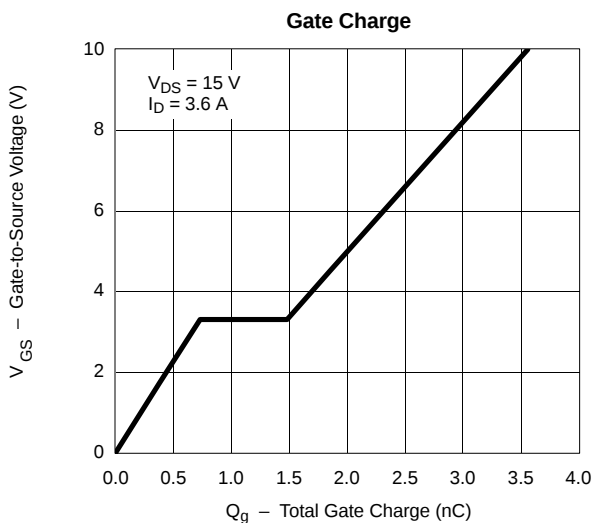
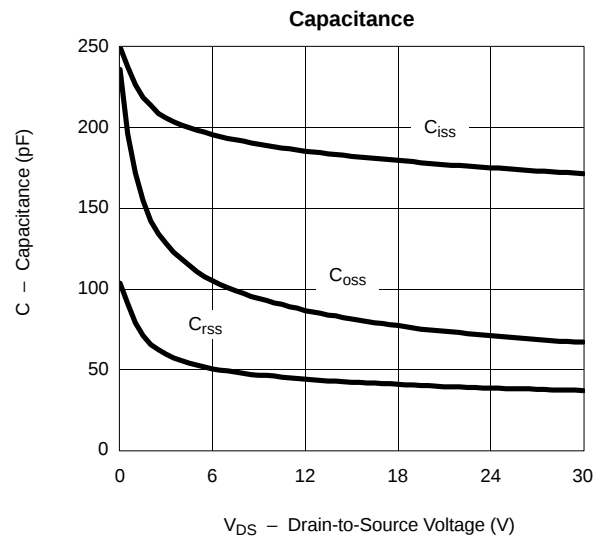
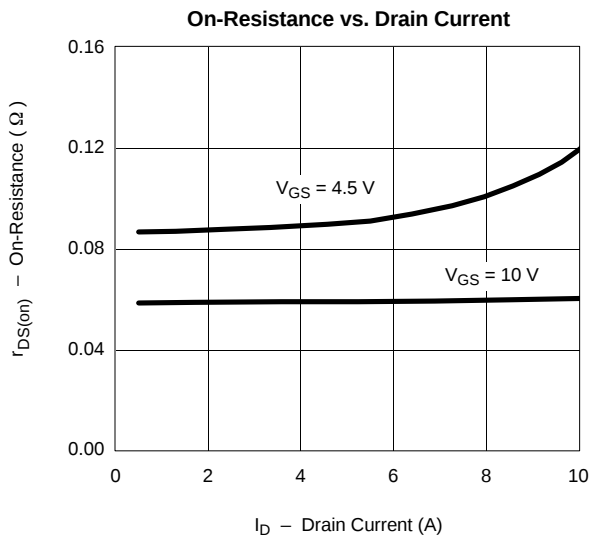
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
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	70	

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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