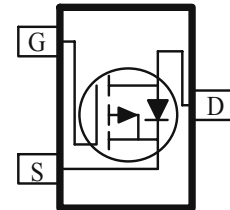
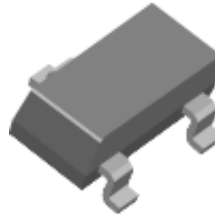


P-Channel 60-V (D-S) MOSFET

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-60	0.381 @ $V_{GS} = -10V$	1.6
	0.561 @ $V_{GS} = -4.5V$	1.3

- Low $r_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe SOT-23 saves board space
- Fast switching speed
- High performance trench technology



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ^a	I_D	$T_A=25^\circ C$	1.7
		$T_A=70^\circ C$	1.4
Pulsed Drain Current ^b	I_{DM}	± 15	A
Continuous Source Current (Diode Conduction) ^a	I_S	-1.7	A
Power Dissipation ^a	P_D	$T_A=25^\circ C$	1.3
		$T_A=70^\circ C$	0.8
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	R_{THJA}	t \leq 5 sec	100
		Steady-State	166

Notes

- a. Surface Mounted on 1" x 1" FR4 Board.
- b. Pulse width limited by maximum junction temperature

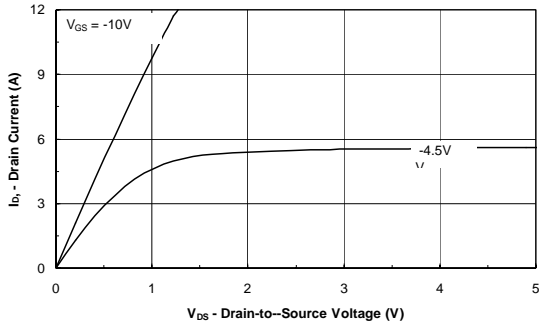
SPECIFICATIONS (T _A = 25°C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 uA	-1	-2.1	-3.5	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -48 V, V _{GS} = 0 V			-1	uA
		V _{DS} = -48 V, V _{GS} = 0 V, T _J = 55°C			-10	
On-State Drain Current ^A	I _{D(on)}	V _{DS} = -5 V, V _{GS} = -10 V	-8			A
Drain-Source Breakdown Voltage	V _{BR(DSS)}	V _{GS} = 0, I _D = -1 mA	-60			V
Drain-Source On-Resistance ^A	r _{DS(on)}	V _{GS} = -10 V, I _D = -1.6 A		300	381	mΩ
		V _{GS} = -4.5 V, I _D = -1.3 A		450	561	
Forward Transconductance ^A	g _{fs}	V _{DS} = -15 V, I _D = -1.6 A		8		S
Diode Forward Voltage	V _{SD}	I _S = -2.5 A, V _{GS} = 0 V			-1.2	V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -30 V, V _{GS} = -4.5 V, I _D = -1.6 A		18		nC
Gate-Source Charge	Q _{gs}			5		
Gate-Drain Charge	Q _{gd}			2		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -30 V, R _L = 30 Ω, I _D = -1 A, V _{GEN} = -10 V, R _G = 6Ω		8		nS
Rise Time	t _r			10		
Turn-Off Delay Time	t _{d(off)}			35		
Fall-Time	t _f			12		

Notes

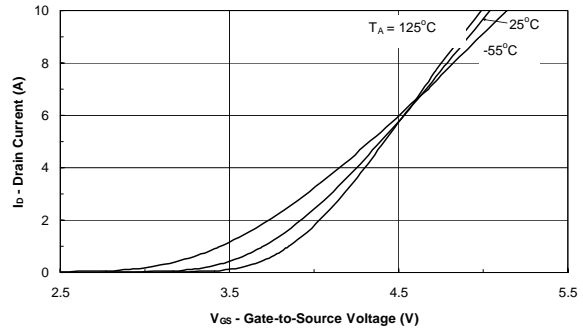
- a. Pulse test: PW ≤ 300us duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.

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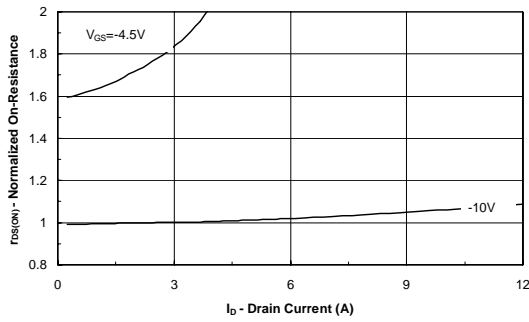
Typical Electrical Characteristics



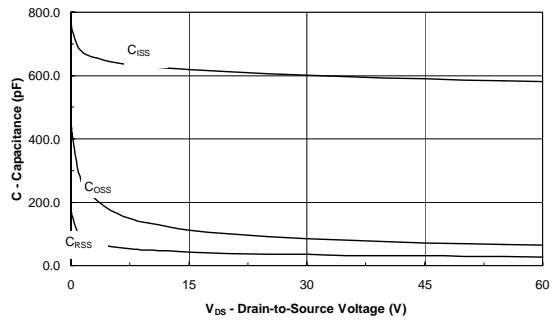
Output Characteristics



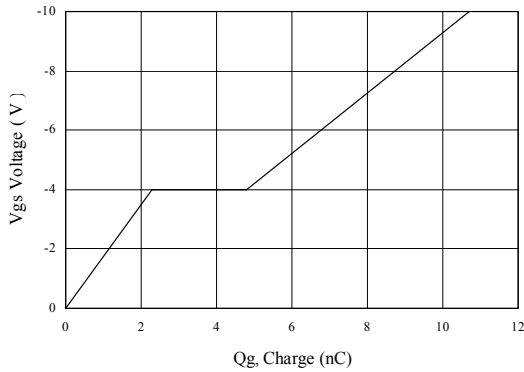
Transfer Characteristics



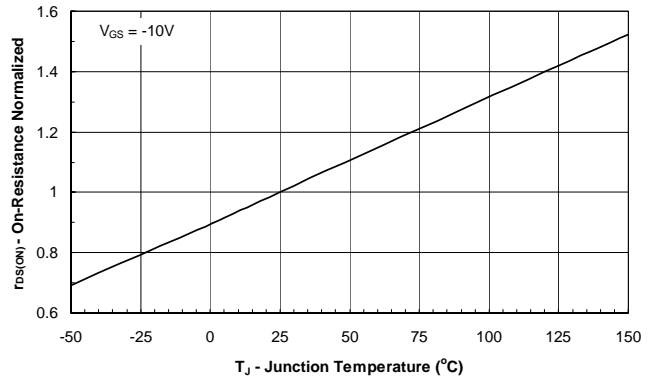
On-Resistance vs. Drain Current



Capacitance

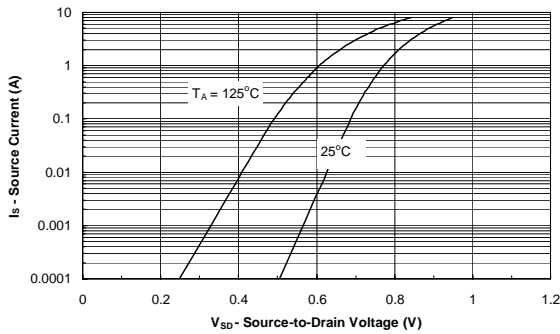


Gate Charge

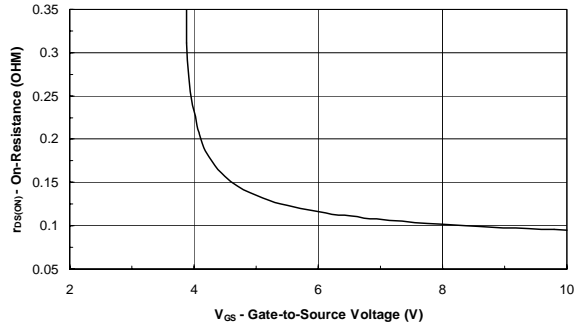


On-Resistance vs. Junction Temperature

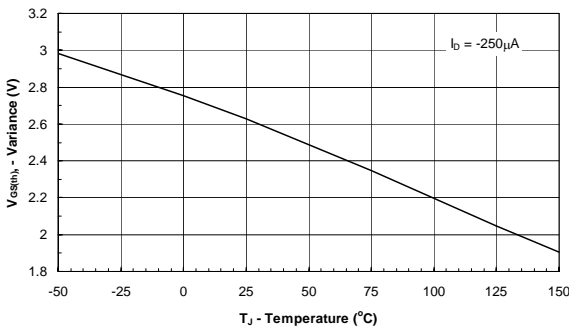
Typical Electrical Characteristics



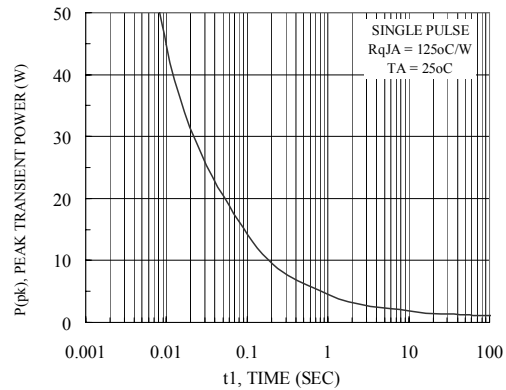
Source-Drain Diode Forward Voltage



On-Resistance vs Gate-to-Source Voltage

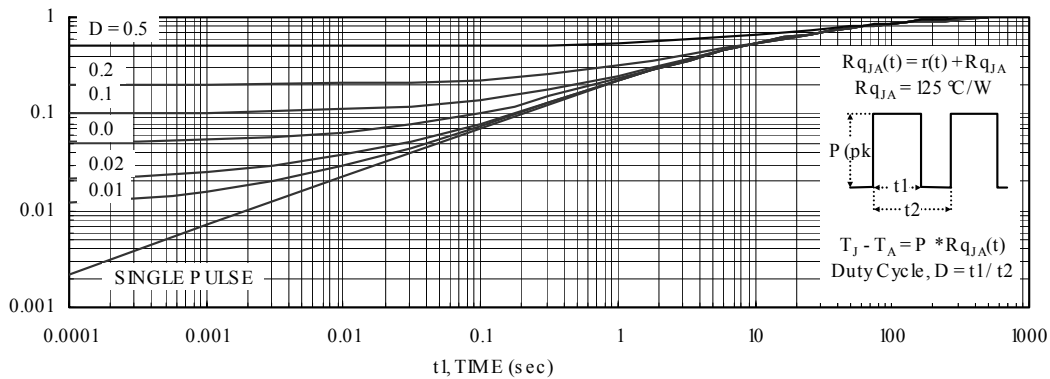


Threshold Voltage



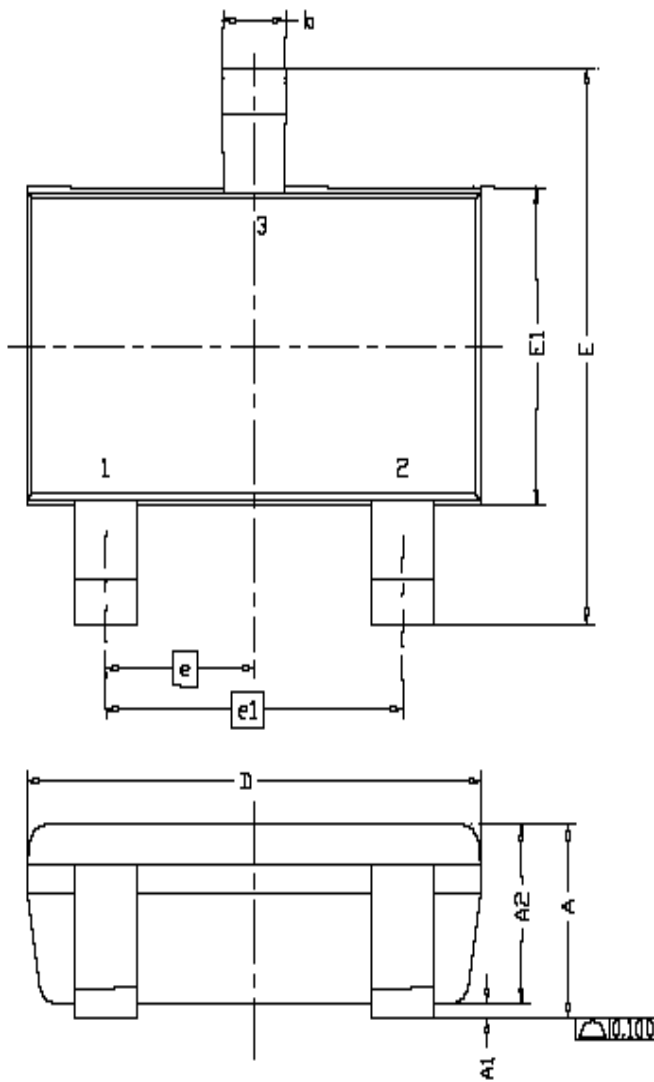
Single Pulse Power

Normalized Thermal Transient Junction to Ambient



Normalied Thermal Transient Impedance, Junction-to-Ambitent

Package Information



DIM.	MILLIMETERS		
	MIN	NOM	MAX
A	0.935	0.95	1.10
A1	0.01	---	0.10
A2	0.85	0.90	0.925
b	0.30	0.40	0.50
c	0.10	0.15	0.25
D	2.70	2.90	3.10
E	2.60	2.80	3.00
E1	1.40	1.60	1.80
e	0.95 BSC		
e1	1.90 BSC		
L	0.30	0.40	0.60
L1	0.60REF		
L2	0.25BSC		
R	0.10	---	---
θ	0°	4°	8°
θ1	7°NOM		

