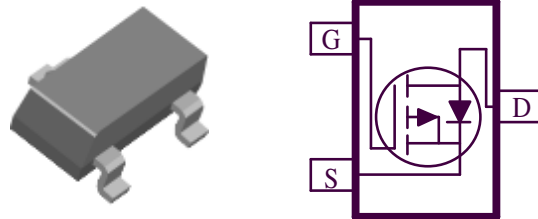


P-Channel 30-V (D-S) MOSFET

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.

- Low $r_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe SC70-3 saves board space
- Fast switching speed
- High performance trench technology

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (OHM)	I_D (A)
-30	0.112 @ $V_{GS} = -10V$	-1.5
	0.172 @ $V_{GS} = -4.5V$	-1.2



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ^a	$T_A = 25^\circ C$	I_D	-1.5	A
	$T_A = 70^\circ C$		-1.2	
Pulsed Drain Current ^b		I_{DM}	-2.5	
Continuous Source Current (Diode Conduction) ^a		I_S	± 0.28	A
Power Dissipation ^a	$T_A = 25^\circ C$	P_D	0.34	W
	$T_A = 70^\circ C$		0.22	
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	$t \leq 5$ sec	R_{THJA}	375	$^\circ C/W$
	Steady-State		430	

Notes

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

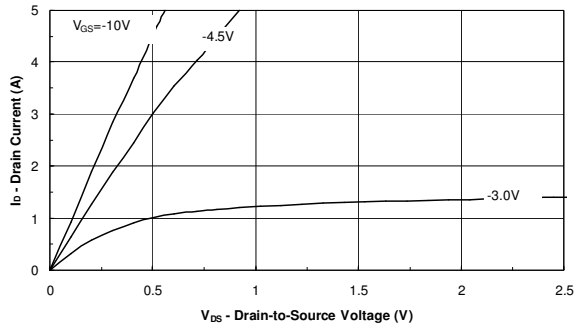
SPECIFICATIONS (T _A = 25°C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 uA	-1			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -24 V, V _{GS} = 0 V			-1	uA
		V _{DS} = -24 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	-5			A
Drain-Source On-Resistance ^A	r _{DS(on)}	V _{GS} = -10 V, I _D = -1.5 A			112	nΩ
		V _{GS} = -4.5 V, I _D = -1.2 A			172	
Forward Transconductance ^A	g _s	V _{DS} = -5 V, I _D = -1.5 A		9		S
Diode Forward Voltage	V _{SD}	I _S = -0.46 A, V _{GS} = 0 V		-0.65		V
Dynamic^b						
Total Gate Charge	Q _g	V _{DS} = -10 V, V _{GS} = -5 V, I _D = -1.5 A		7.2		nC
Gate-Source Charge	Q _{gs}			1.7		
Gate-Drain Charge	Q _{gd}			1.5		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -10 V, I _L = -1 A, V _{GEN} = -4.5 V, R _G = 6 Ω		10		ns
Rise Time	t _r			9		
Turn-Off Delay Time	t _{d(off)}			27		
Fall-Time	t _f			11		

Notes

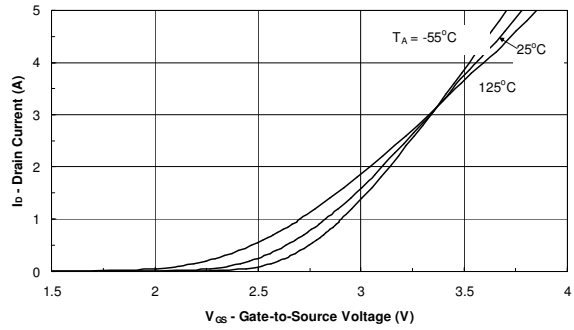
- a. Pulse test: PW ≤ 300us duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.
- c. Repetitive rating, pulse width limited by junction temperature.

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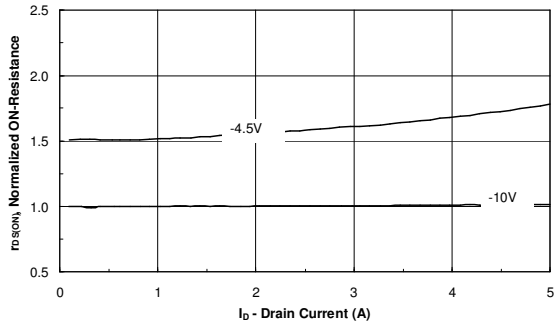
Typical Electrical Characteristics (P-Channel)



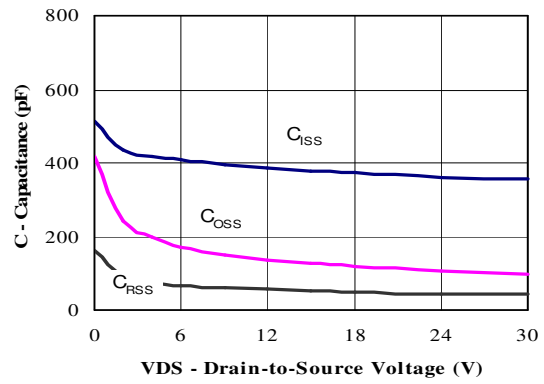
Output Characteristics



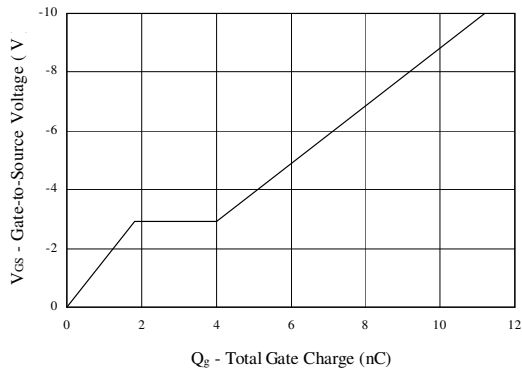
Transfer Characteristics



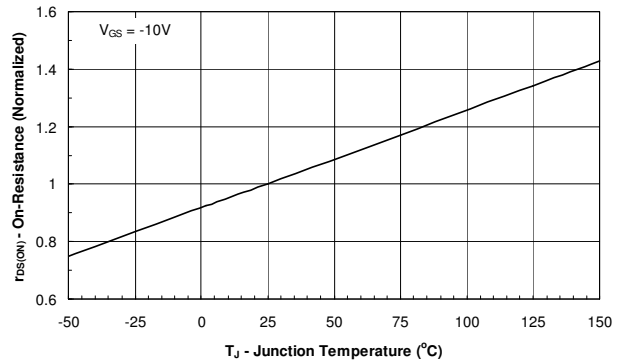
On-Resistance vs. Drain Current



Capacitance

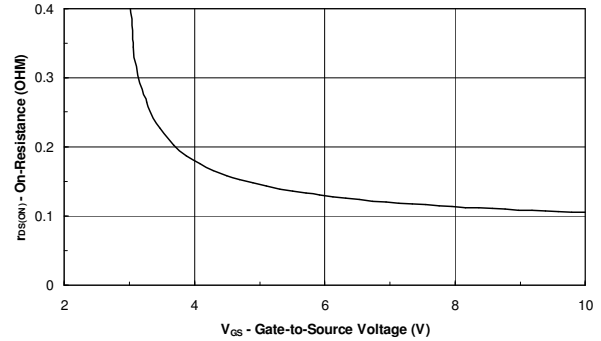
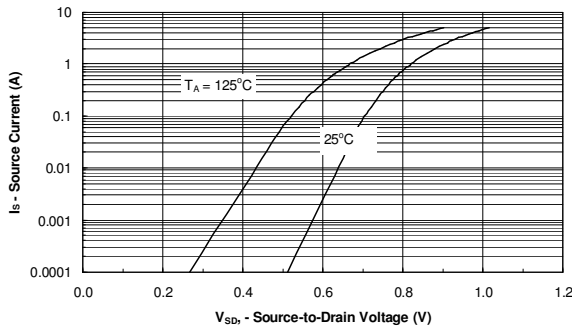


Gate Charge

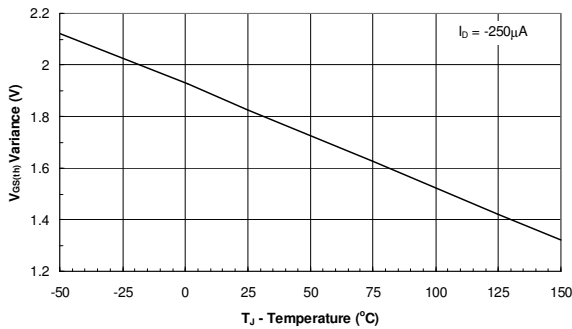


On-Resistance vs. Junction Temperature

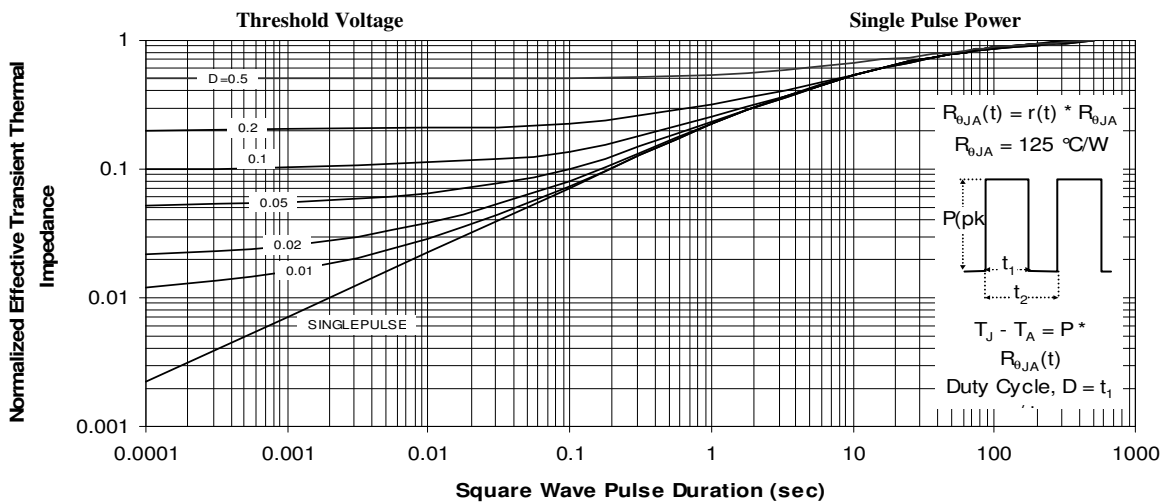
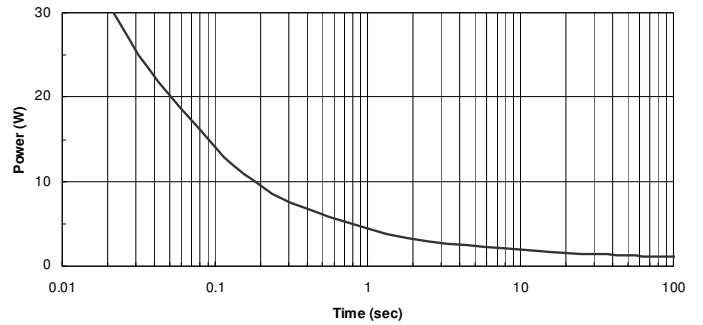
Typical Electrical Characteristics (P-Channel)



Source-Drain Diode Forward Voltage



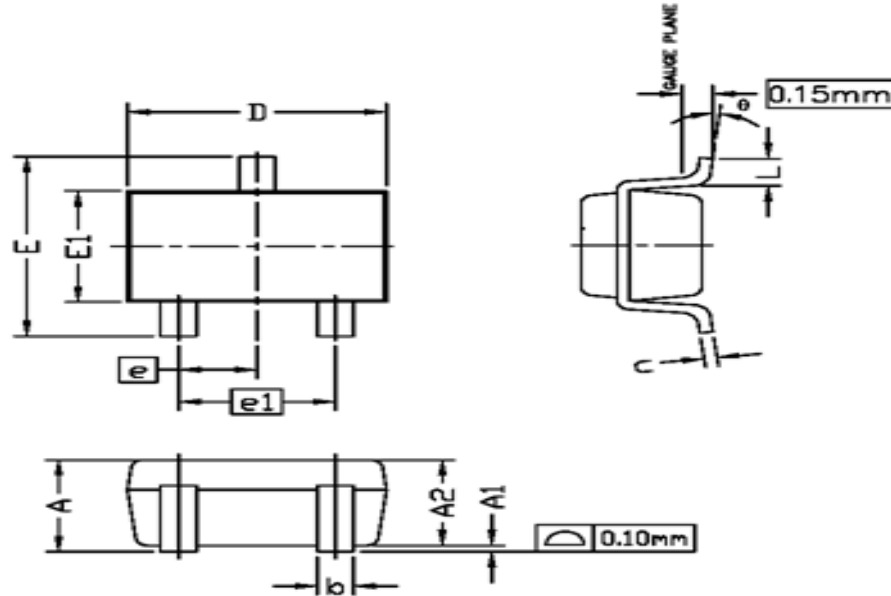
On-Resistance vs. Gate-to Source Voltage



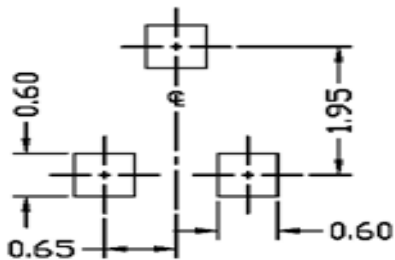
Normalized Thermal Transient Impedance, Junction-to-Ambient

Package Information

SC70 PACKAGE OUTLINE



RECOMMENDED LAND PATTERN



UNIT: mm

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A			1.10			0.043
A1	0.60		1.10	0.060		0.043
A2	0.7	0.9	1.00	0.028	0.035	0.039
b	0.15		0.30	0.006		0.012
c	0.08		0.22	0.003		0.009
D	1.85	2.10	2.15	0.073	0.083	0.085
E	1.80	2.30	2.40	0.071	0.091	0.094
e	0.65 BSC			0.026 BSC		
e1	1.30 BSC			0.051 BSC		
E1	1.1	1.30	1.4	0.043	0.051	0.055
L	0.26	0.36	0.46	0.010	0.014	0.018
θ	0°	4°	8°	0°	4°	8°

NOTE

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONS ARE INCLUSIVE OF PLATING.
3. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
MOLD FLASH AT THE NON-LEAD SIDES SHOULD BE LESS THAN 3 MILS EACH.
4. DIE IS FACING UP FOR MOLD AND FACING DOWN FOR TRIM/FORM.
ie: REVERSE TRIM/FORM.
5. DIMENSION L IS MEASURED IN GAUGE PLANE.
6. CONTROLLING DIMENSION IS MILLIMETER.
CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.