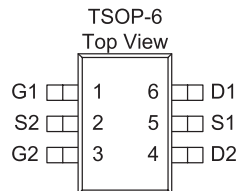


P-Channel 30-V (D-S) MOSFET

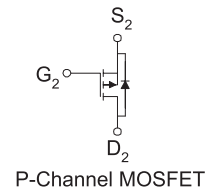
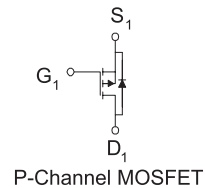
These miniature surface mount MOSFETs utilize High Cell Density process. Low $r_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are DC-DC converters, power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

- Low $r_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- Miniature TSOP-6 Surface Mount Package Saves Board Space



PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (OHM)	I_D (A)
-30	0.130 @ $V_{GS} = -10V$	-2.5
	0.190 @ $V_{GS} = -4.5V$	-1.9



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ^a	$T_A = 25^\circ\text{C}$	I_D	-2.5	A
	$T_A = 70^\circ\text{C}$		-1.9	
Pulsed Drain Current ^b		I_{DM}	-10	
Continuous Source Current (Diode Conduction) ^a		I_S	± 1.6	A
Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	1.15	W
	$T_A = 70^\circ\text{C}$		0.7	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

Parameter		Symbol	Typ	Max	
Maximum Junction-to-Ambient ^a	$t \leq 10 \text{ sec}$	R_{thJA}	93	110	$^\circ\text{C/W}$
	Steady State		130	150	

Notes

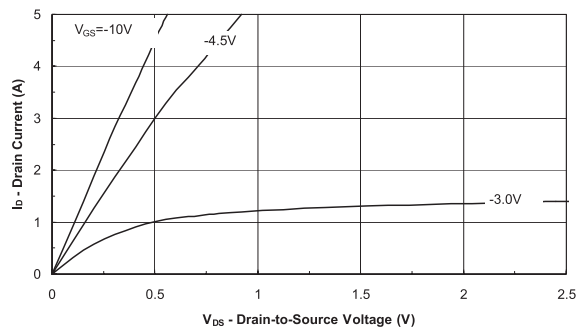
- Surface Mounted on 1" x 1" FR4 Board.
- Pulse width limited by maximum junction temperature

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	-1.00			
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	-3			A
Drain-Source On-Resistance ^A	r _{DS(on)}	V _{GS} = -10 V, I _D = -2.5 A			0.130	Ω
		V _{GS} = -4.5 V, I _D = -1.9 A			0.190	
Forward Tranconductance ^A	g _{fs}	V _{DS} = -5 V, I _D = -2.5 A		3		S
Diode Forward Voltage	V _{SD}	I _S = -1.6 A, V _{GS} = 0 V		-0.70		V
Dynamic ^b						
Total Gate Charge	Q _g	V _{DS} = -5 V, V _{GS} = -4.5 V, I _D = -2.5 A		6.0		nC
Gate-Source Charge	Q _{gs}			0.80		
Gate-Drain Charge	Q _{gd}			1.30		
Input Capacitance	C _{iss}	P-Channel V _{DS} =-15V, V _{GS} =0V, f=1MHz		451		pF
Output Capacitance	C _{oss}			130		
Reverse Transfer Capacitance	C _{rss}			33		
Turn-On Delay Time	t _{d(on)}	V _{DD} = -5 V, R _L = 5 OHM, V _{GEN} = -4.5 V, R _G = 6 OHM		6.5		ns
Rise Time	t _r			20		
Turn-Off Delay Time	t _{d(off)}			31		
Fall-Time	t _f			21		

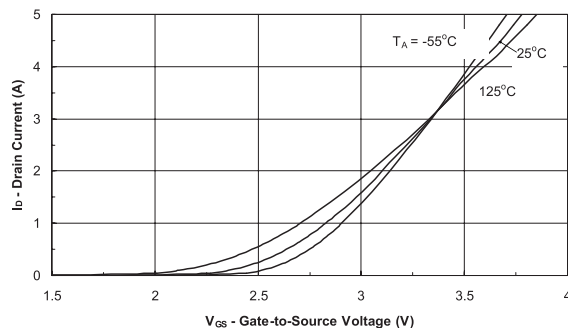
Notes

- Pulse test: $PW \leq 300 \mu\text{s}$ duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

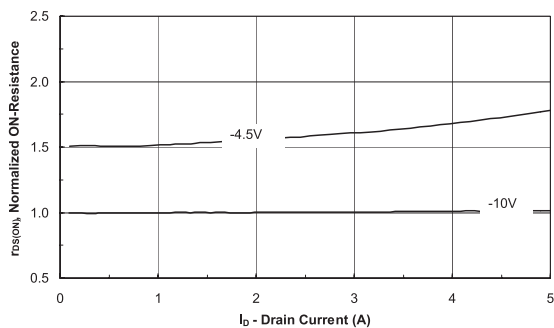
Typical Electrical Characteristics (P-Channel)



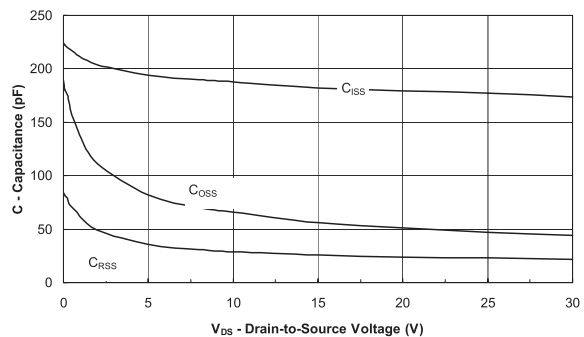
Output Characteristics



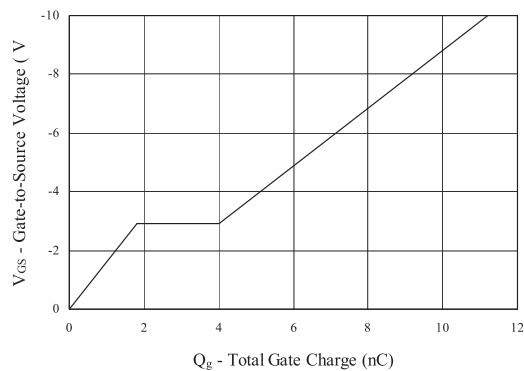
Transfer Characteristics



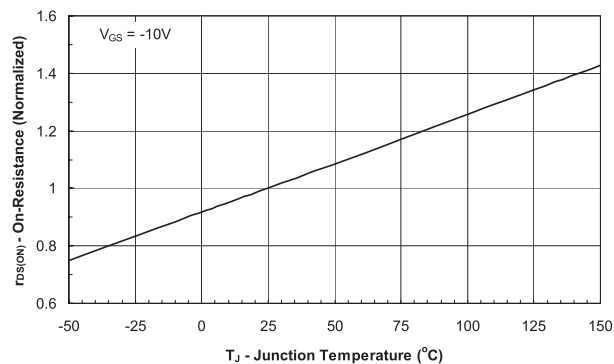
On-Resistance vs. Drain Current



Capacitance

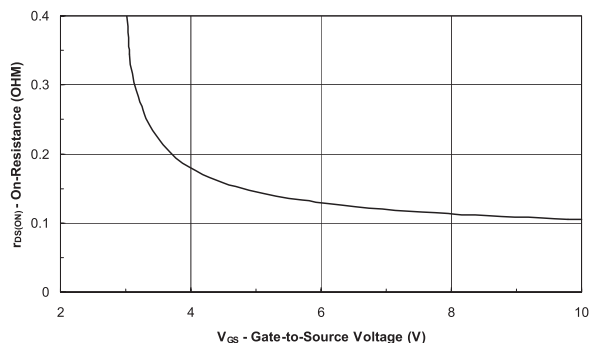
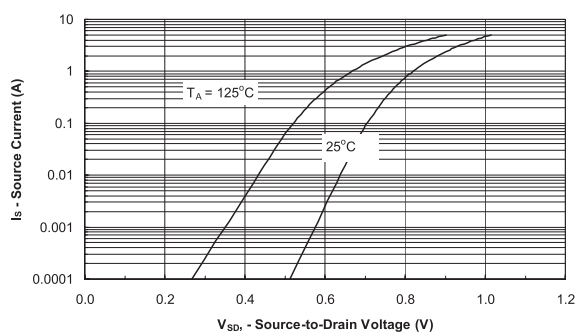


Gate Charge

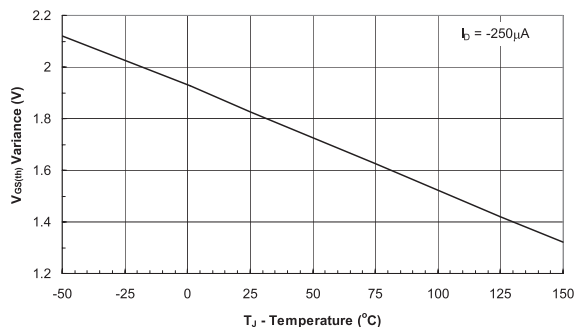


On-Resistance vs. Junction Temperature

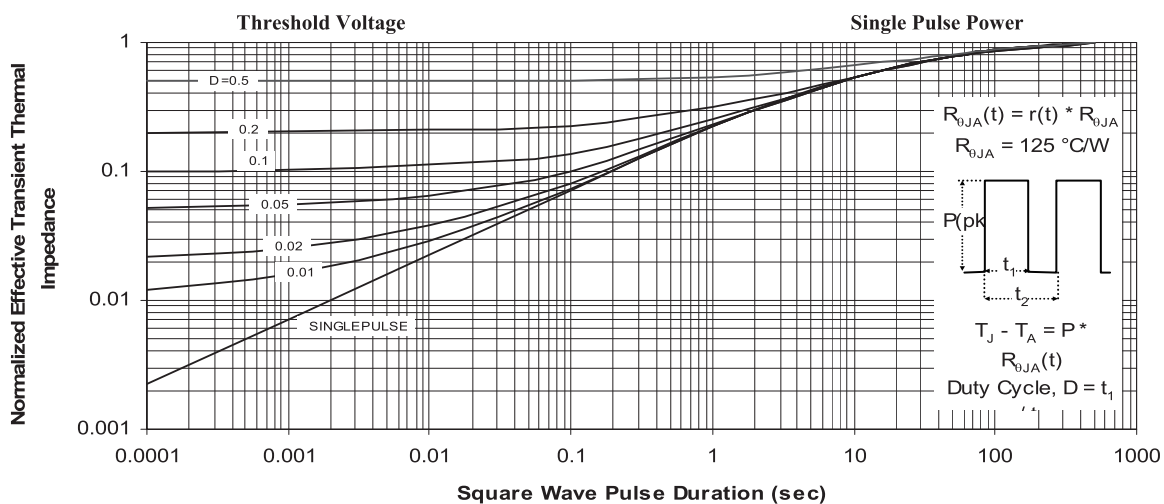
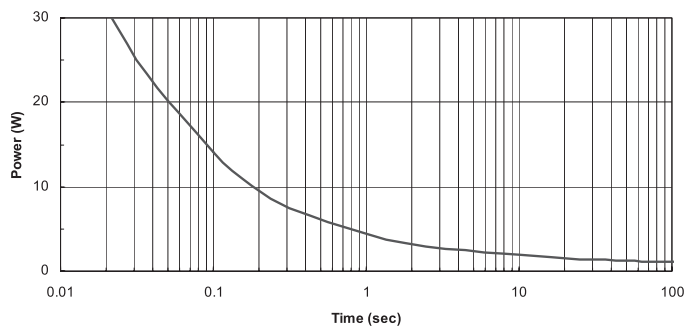
Typical Electrical Characteristics (P-Channel)



Source-Drain Diode Forward Voltage



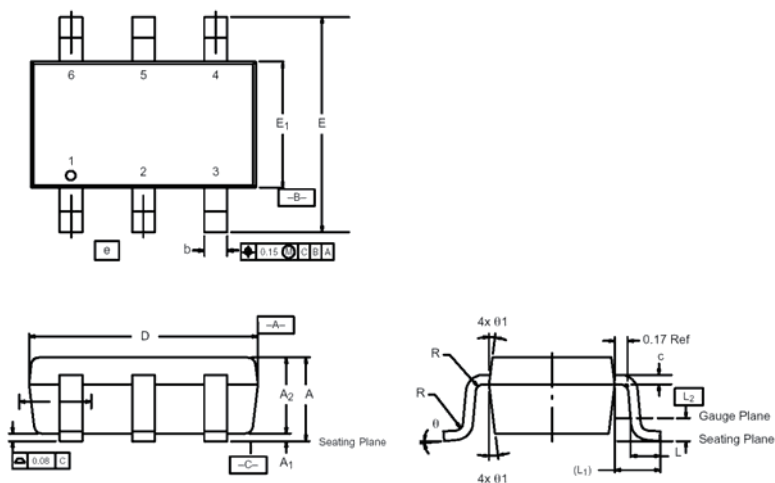
On-Resistance vs. Gate-to Source Voltage



Normalized Thermal Transient Impedance, Junction-to-Ambient

Package Information

TSOP-6: 6LEAD



Dim	MILLIMETERS			INCHES		
	Min	Nom	Max	Min	Nom	Max
A	0.91	—	1.10	0.036	—	0.043
A ₁	0.01	—	0.10	0.0004	—	0.004
A ₂	0.84	—	1.00	0.033	0.038	0.039
b	0.30	0.32	0.45	0.012	0.013	0.018
c	0.10	0.15	0.20	0.004	0.006	0.008
D	2.95	3.05	3.10	0.116	0.120	0.122
E	2.70	2.85	2.98	0.106	0.112	0.117
E ₁	1.55	1.65	1.70	0.061	0.065	0.067
e	1.00 BSC			0.0394 BSC		
L	0.35	—	0.50	0.014	—	0.020
L ₁	0.60 Ref			0.024 Ref		
L ₂	0.25 BSC			0.010 BSC		
R	0.10	—	—	0.004	—	—
Ø	0°	4°	8°	0°	4°	8°
Ø ₁	7° Nom			7° Nom		