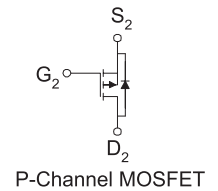
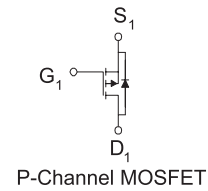
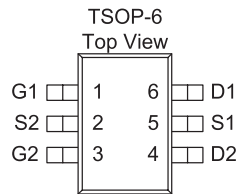


P-Channel 20-V (D-S) MOSFET

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 TSOP-6 saves board space
- Fast switching speed
- High performance trench technology



PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (OHM)	I_D (A)
-20	0.130 @ $V_{GS} = -4.5V$	-2.5
	0.190 @ $V_{GS} = -2.5V$	-1.9

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)			
Parameter		Symbol	Maximum Units
Drain-Source Voltage		V_{DS}	-20
Gate-Source Voltage		V_{GS}	± 12
Continuous Drain Current ^a	$T_A = 25^\circ C$	I_D	-2.5
	$T_A = 70^\circ C$		-1.9
Pulsed Drain Current ^b		I_{DM}	-10
Continuous Source Current (Diode Conduction) ^a		I_S	± 1.6
Power Dissipation ^a	$T_A = 25^\circ C$	P_D	1.15
	$T_A = 70^\circ C$		0.7
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150 $^\circ C$

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

Notes

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

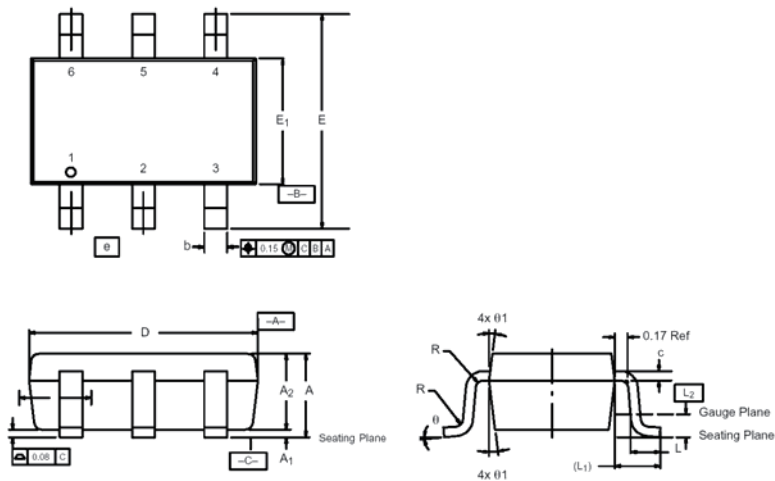
SPECIFICATIONS (T _A = 25 ^o C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 uA	-0.60			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = +/-12 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16 V, V _{GS} = 0 V			-1	uA
		V _{DS} = -16 V, V _{GS} = 0 V, T _J = 55 ^o 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} = -4.5 V, I _D = -2.5 A			0.130	Ω
		V _{GS} = -2.5 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		12.2		nC
Gate-Source Charge	Q _{gs}			1.1		
Gate-Drain Charge	Q _{gd}			1.5		
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.

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		