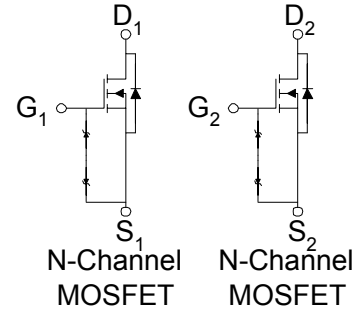
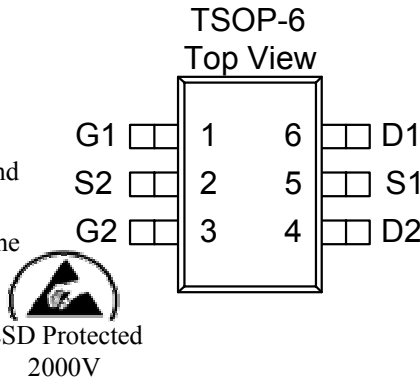


N-Channel 60-V (D-S) MOSFET

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	0.153 @ $V_{GS} = 10V$	2.3
	0.185 @ $V_{GS} = 4.5V$	2.1

- 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



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ^a	$T_A = 25^\circ C$	I_D	2.3	A
	$T_A = 70^\circ C$		1.9	
Pulsed Drain Current ^b		I_{DM}	8	
Continuous Source Current (Diode Conduction) ^a		I_S	1.05	A
Power Dissipation ^a	$T_A = 25^\circ C$	P_D	1.15	W
	$T_A = 70^\circ C$		0.7	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ C$

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	$t \leq 10$ sec	$R_{\theta JA}$	100	$^\circ C/W$
	Steady-State		166	$^\circ C/W$

Notes

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

SPECIFICATIONS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{GS} = V_{DS}, I_D = 250 \mu\text{A}$	1			V
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = 20 \text{ V}$			100	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48 \text{ V}, V_{GS} = 0 \text{ V}$			1	μA
		$V_{DS} = 48 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			10	μA
On-State Drain Current ^A	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = 10 \text{ V}$	5			A
Drain-Source On-Resistance ^A	$r_{DS(on)}$	$V_{GS} = 10 \text{ V}, I_D = 2.3 \text{ A}$			0.153	Ω
		$V_{GS} = 4.5 \text{ V}, I_D = 2.1 \text{ A}$			0.185	
Forward Transconductance ^A	g_{fs}	$V_{DS} = 5 \text{ V}, I_D = 2.3 \text{ A}$		10		S
Diode Forward Voltage ^A	V_{SD}	$I_S = 1.05 \text{ A}, V_{GS} = 0 \text{ V}$		0.80		S
Dynamic^B						
Total Gate Charge	Q_g	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=2.3\text{A}$		3		nC
Gate-Source Charge	Q_{gs}			0.6		
Gate-Drain Charge	Q_{gd}			1.0		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=15\text{V}, V_{GS}=4.5\text{V}, I_D=1\text{A},$ $R_{GEN}=15\Omega$		5		nS
Rise Time	t_r			12		
Turn-Off Delay Time	$t_{d(off)}$			13		
Fall-Time	t_f			7		

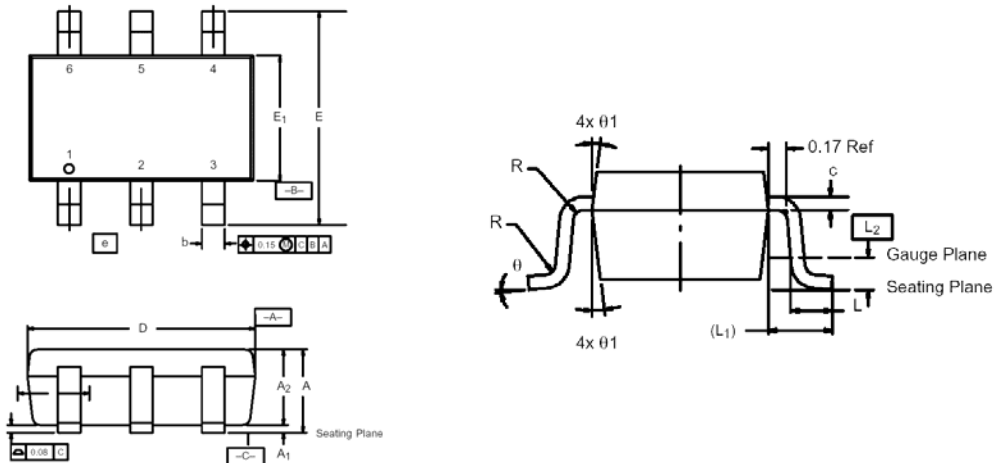
Notes

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

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Package Information

TSOP-6: 6LEAD



Dim	MILLIMETERS			INCHES		
	Min	Nom	Max	Min	Nom	Max
A	0.91	–	1.10	0.036	–	0.043
A₁	0.01	–	0.10	0.0004	–	0.004
A₂	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
E₁	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
L₁	0.60 Ref			0.024 Ref		
L₂	0.25 BSC			0.010 BSC		
R	0.10	–	–	0.004	–	–
θ	0°	4°	8°	0°	4°	8°
θ₁	7° Nom			7° Nom		