

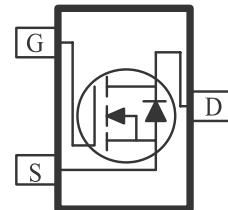
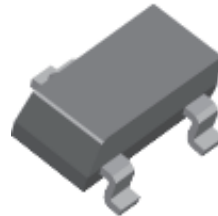
N-Channel 60V (D-S) MOSFET

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 power switch, 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 Gate Charge
- Fast Switch
- Miniature SOT-23 Surface Mount Package Saves Board Space

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
60	0.194 @ $V_{GS} = 10\text{ V}$	2.2
	0.273 @ $V_{GS} = 4.5\text{ V}$	1.8



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

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ^a	$T_A = 25^\circ\text{C}$	I_D	2.2	A
	$T_A = 70^\circ\text{C}$		1.7	
Pulsed Drain Current ^b		I_{DM}	± 15	
Continuous Source Current (Diode Conduction) ^a		I_S	1.7	A
Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	1.3	W
	$T_A = 70^\circ\text{C}$		0.8	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	$t \leq 5\text{ sec}$	R_{THJA}	100	$^\circ\text{C/W}$
	Steady-State		166	

Notes

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

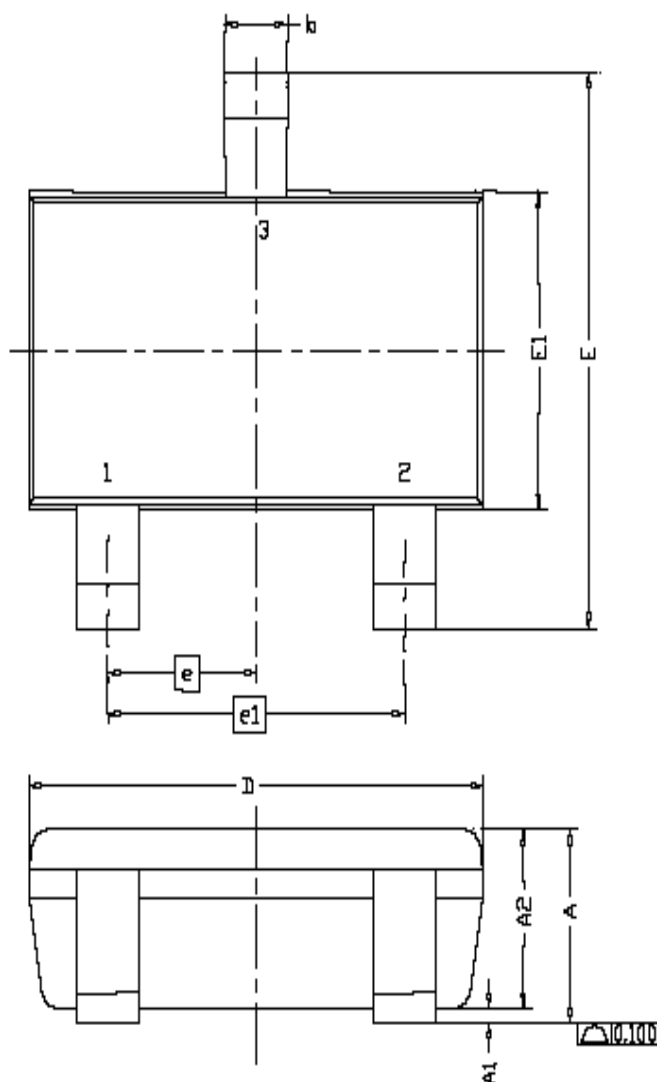
SPECIFICATIONS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \text{ }\mu\text{A}$	1.0			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 48 \text{ V}, V_{GS} = 0 \text{ V}$			1	μA
		$V_{DS} = 48 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			50	
On-State Drain Current ^A	$I_{D(on)}$	$V_{DS} = 5 \text{ V}, V_{GS} = 10 \text{ V}$	10			A
Drain-Source On-Resistance ^A	$r_{DS(on)}$	$V_{GS} = 10 \text{ V}, I_D = 2.2 \text{ A}$			194	m Ω
		$V_{GS} = 4.5 \text{ V}, I_D = 1.8 \text{ A}$			273	
Forward Tranconductance ^A	g_{fs}	$V_{DS} = 4.5 \text{ V}, I_D = 2.2 \text{ A}$		8		S
Diode Forward Voltage	V_{SD}	$I_S = 1.7 \text{ A}, V_{GS} = 0 \text{ V}$			1.2	V
Dynamic ^b						
Total Gate Charge	Q_g	$V_{DS} = 30 \text{ V}, V_{GS} = 5 \text{ V}, I_D = 2.2 \text{ A}$		4.0		nC
Gate-Source Charge	Q_{gs}			4.0		
Gate-Drain Charge	Q_{gd}			2.0		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 30 \text{ V}, R_L = 30 \text{ }\Omega, I_D = 1 \text{ A},$ $V_{GEN} = 10 \text{ V}$		10		ns
Rise Time	t_r			10		
Turn-Off Delay Time	$t_{d(off)}$			20		
Fall-Time	t_f			10		
Source-Ddrain Reverse Recovery Time	t_{rr}	$I_F = 1.7 \text{ A}, di/dt = 100 \text{ A}/\mu\text{S}$		50		

Notes

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

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	0.60 REF		
L2	0.25 BSC		
R	0.10	---	---
θ	0°	4°	8°
θ_1	7° NOM		

