

N-Channel 55V (D-S) MOSFET

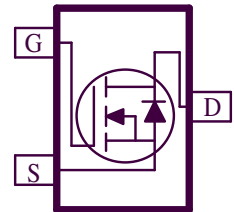
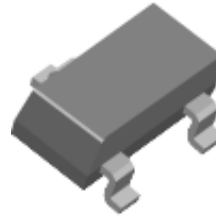
These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
55	0.160 @ $V_{GS} = 4.5$ V	2.4
	0.200 @ $V_{GS} = 2.5$ V	2.1

- Low $r_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe SOT-23 saves board space
- Fast switching speed
- High performance trench technology



RoHS
COMPLIANT
HALOGEN
FREE
Available



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	55	V
Gate-Source Voltage		V_{GS}	± 12	
Continuous Drain Current ^a	$T_A = 25^\circ\text{C}$	I_D	2.4	A
	$T_A = 70^\circ\text{C}$		2	
Pulsed Drain Current ^b		I_{DM}	± 10	
Continuous Source Current (Diode Conduction) ^a		I_S	1	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	$t \leq 5$ 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

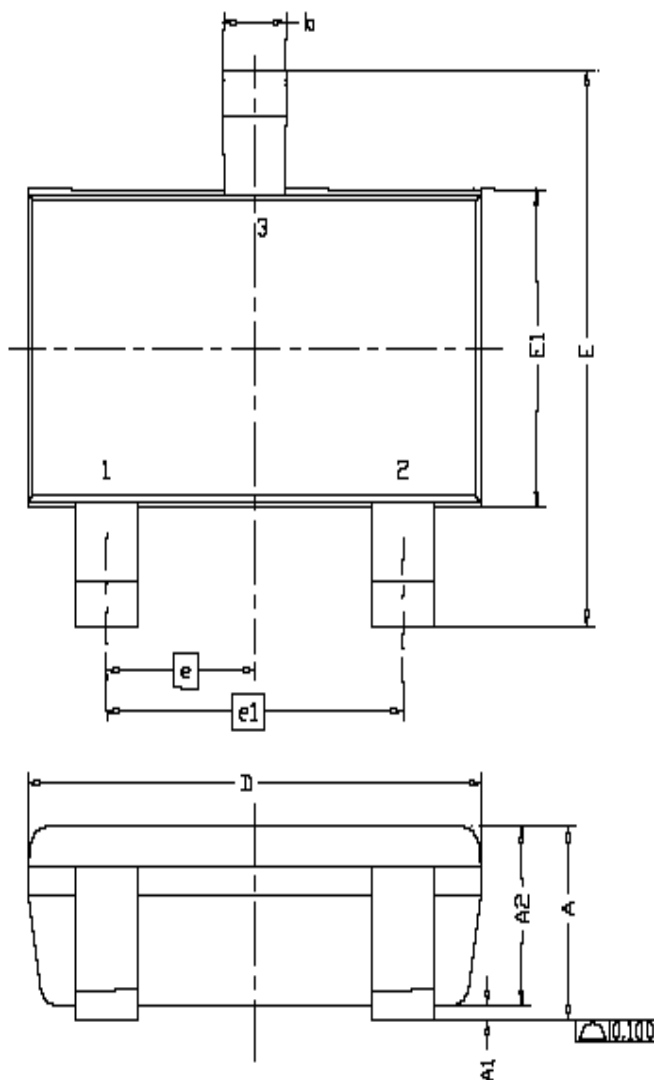
SPECIFICATIONS (T _A = 25°C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
Static						
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 uA	1.0			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±12 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 44 V, V _{GS} = 0 V			1	uA
		V _{DS} = 44 V, V _{GS} = 0 V, T _J = 55°C			50	
On-State Drain Current ^A	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 4.5 V	10			A
Drain-Source On-Resistance ^A	r _{DS(on)}	V _{GS} = 4.5 V, I _D = 2.4 A			160	mΩ
		V _{GS} = 2.5 V, I _D = 2.1 A			200	
Forward Tranconductance ^A	g _{fs}	V _{DS} = 4.5 V, I _D = 2.4 A		8		S
Diode Forward Voltage	V _{SD}	I _S = 1.7 A, V _{GS} = 0 V		1.10		V
Dynamic ^b						
Total Gate Charge	Q _g	V _{DS} = 30 V, V _{GS} = 5 V, I _D = 2.4 A		3.6		nC
Gate-Source Charge	Q _{gs}			1.8		
Gate-Drain Charge	Q _{gd}			1.3		
Turn-On Delay Time	t _{d(on)}	V _{DD} = 30 V, R _L = 30 Ω, I _D = 1 A, V _{GEN} = 10 V		10		ns
Rise Time	t _r			10		
Turn-Off Delay Time	t _{d(off)}			20		
Fall-Time	t _f			10		

Notes

- Pulse test: PW ≤ 300us duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.

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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°
θ1	7° NOM		

