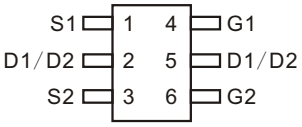
Dual N–Channel 20V(D–S) MOSFET

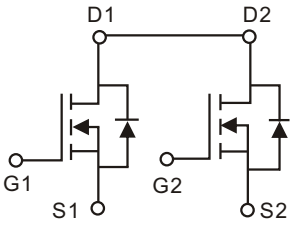
These miniature surface mount MOSFET utilize High Cell Density process. Low $R_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are DC–DC converters, power management in portable and battery–powered products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

- Low $R_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- Low gate charge 7nC
- High performance
- High current handling
- Miniature TSOP–6 Surface Mount Package Saves Board Space

PRODUCT SUMMARY		
V_{DS} (V)	$R_{DS(on)}$(ohm)	I_D(A)
20	0.023 @ V_{GS} = 4.5V	6.0
	0.033 @ V_{GS} = 2.5V	5.2

TSOP6
Top View





ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ UNLESS OTHERWISE NOTED)

Parameter		Symbol	Maximum	Units
Drain–Source Voltage		V_{DS}	20	V
Gate–Source Voltage		V_{GS}	± 10	
Continuous Drain Current [a]	T_A=25℃	I_D	5.8	A
	T_A=70℃		3.7	
Pulsed Drain Current [b]		I_{DM}	10	
Continuous Source Current (Diode Conduction) [a]		I_S	0.46	A
Power Dissipation [a]	T_A=25℃	P_D	1.25	W
	T_A=70℃		0.8	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	–55 to 150	℃

THERMAL RESISTANCE RATINGS

Parameter		Symbol	Maximum	Units
Maximum Junction–to–Ambient [a]	t<= 5 sec	R_{THJA}	100	℃/W
	Steady–State		166	

Notes: a. Surface Mounted on 1” x 1” FR4 Board.
b. Pulse width limited by maximum junction temperature

SPECIFICATIONS (T_A = 25℃ UNLESS OTHERWISE NOTED)

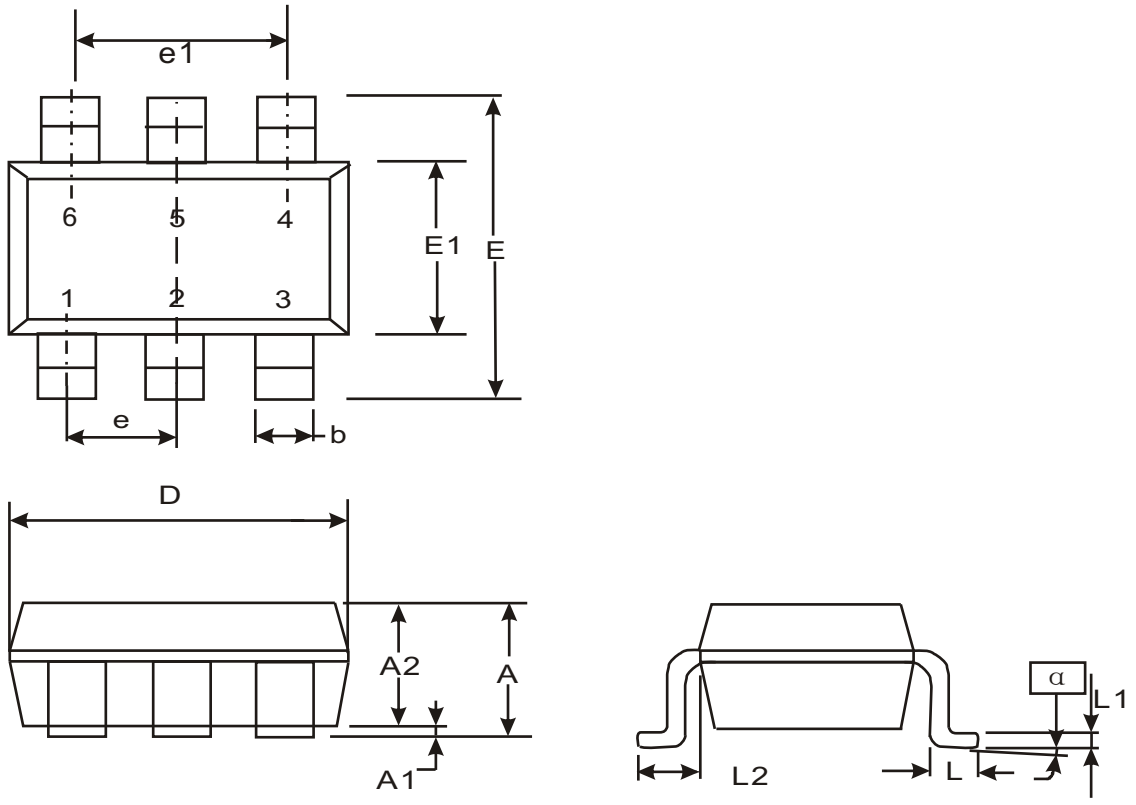
Parameter	Symbol	Test Conditions	Limits			Units
			Min	Typ	Max	
Static						
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250uA	20			V
Gate–Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS},I_D = 250 uA	0.5	0.80	1.5	V
Gate–Body Leakage	I_{GSS}	V_{DS}=0V,V_{GS}= ± 10V			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=16V,V_{GS}=0V			1	uA
		V_{DS}=20V,V_{GS}=0V,T_J=55℃			10	uA
On–State Drain Current[a]	$I_{D(on)}$	V_{DS}=5V,V_{GS}=4.5V	10			A
Drain–Source On–Resistance[a]	$R_{DS(on)}$	V_{GS}=4.5V,I_D=6.0A	20	23	26	mΩ
		V_{GS}=2.5 V, I_D=5.2A	30	33	37	mΩ
Forward Tranconductance[a]	g_{fs}	V_{DS}=5V,I_D=3.0A		11		S
Diode Forward Voltage	V_{SD}	I_S=2.00A,V_{GS}=0V		0.80	1.20	V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=4.5V I_D =4.0 A		11		nC
Gate–Source Charge	Q_{gs}			2.20		nC
Gate–Drain Charge	Q_{gd}			2.50		nC
Switching						
Turn–On Delay Time	$t_{d(on)}$	V_{DD}=10V, I_D=1A, R_G=10 ohm,V_{GEN}=4.5V		9	17	ns
Rise Time	t_r			11	18	ns
Turn–Off Delay Time	$t_{d(off)}$			18	29	ns
Fall–Time	t_f			5	10	ns

Notes: a. Pulse test: PW <= 300us duty cycle <= 2%.

b. Guaranteed by design, not subject to production testing.

Packaging Information

TSOP–6



Dim	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.95	1.45	0.037	0.057
A1	0.05	0.15	0.002	0.006
A2	0.90	1.30	0.035	0.051
b	0.35	0.55	0.0138	0.0217
D	2.8	3.00	0.110	0.118
E	2.6	3.00	0.102	0.118
E1	1.5	1.70	0.059	0.067
e	0.95		0.037	
e1	1.90		0.075	
L	0.35	0.55	0.014	0.022
L1	0.20BSC		0.008BSC	
L2	0.5	0.7	0.020	0.028
α	0°	10°	0°	10°