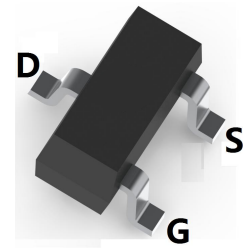
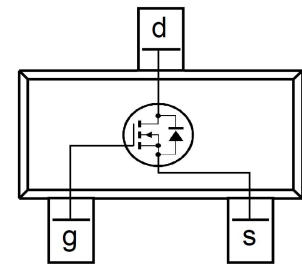


**N-CHANNEL MOSFET**
**FEATURES**

- Low On-Resistance
- Low Gate Threshold Voltage
- Fast Switching Speed
- Low Input / Output Leakage
- Sub-miniature surface mount package


**SOT-23**

**MECHANICAL DATA**

- Case: SOT-23
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.008 grams (approximate)

**MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-source voltage	V <sub>DS</sub>	50	V
Gate-source voltage	V <sub>GS</sub>	±12	V
Continuous drain current	I <sub>D</sub>	0.22	A
Power dissipation	P <sub>D</sub>	0.35	W
Thermal resistance from Junction to ambient	R <sub>θJA</sub>	357	°C/W
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>STG</sub>	-55 ~ +150	°C

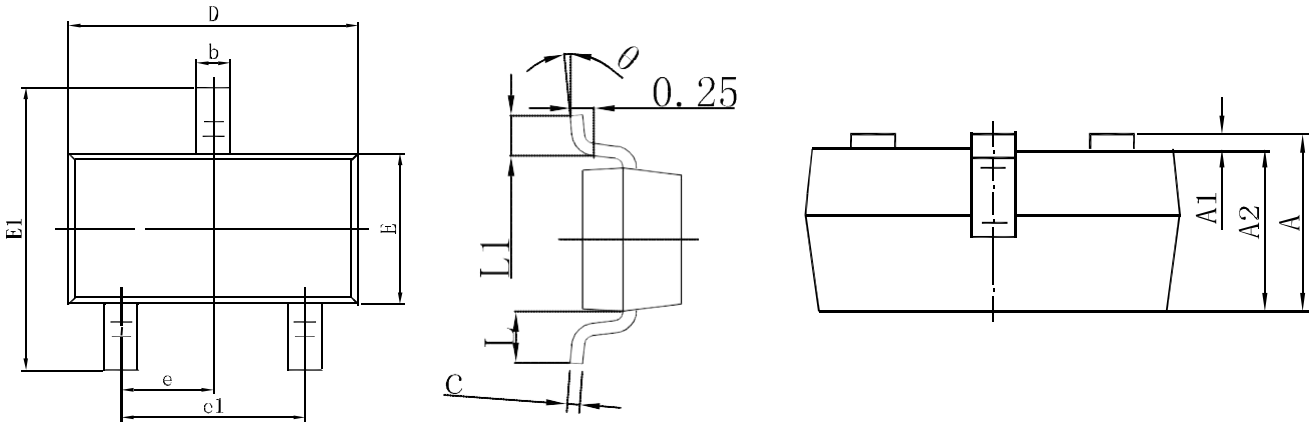
**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Drain-Source breakdown voltage	V <sub>(BR)DSS</sub>	50			V	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA
Zero gate voltage drain current	I <sub>DSS</sub>			0.1	μA	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V
Gate-body leakage current	I <sub>GSS</sub>			±1	μA	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V
				±0.5	μA	V <sub>DS</sub> =0V, V <sub>GS</sub> =±5V
				±0.05	μA	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V
Gate-threshold voltage	V <sub>GS(th)</sub>	0.6		1.20	V	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA
Drain-source on-resistance	R <sub>D(S)ON</sub>			2.50	Ω	V <sub>GS</sub> =1.8V, I <sub>D</sub> =0.05A
				2.0	Ω	V <sub>GS</sub> =2.5V, I <sub>D</sub> =0.05A
				1.6	Ω	V <sub>GS</sub> =5V, I <sub>D</sub> =0.05A
Forward trans-conductance	g <sub>FS</sub>	0.2			S	V <sub>DS</sub> =10V, I <sub>D</sub> =0.2A
Diode forward voltage (note 1)	V <sub>SD</sub>			1.2	V	I <sub>S</sub> =0.115A, V <sub>GS</sub> =0V
Input capacitance(note 1)	C <sub>iss</sub>		58		pF	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz
Output capacitance(note 1)	C <sub>oss</sub>		9.75		pF	
Reverse transfer capacitance(note 1)	C <sub>rss</sub>		5.2		pF	
Gate resistance(note 1)	R <sub>G</sub>		281		Ω	V <sub>DS</sub> =5V, V <sub>GS</sub> =10mV, f=1MHz
Turn-on delay time(note 1)	t <sub>d(on)</sub>			5	nS	V <sub>DD</sub> =30V, V <sub>GS</sub> =10V, R <sub>GEN</sub> =6Ω, I <sub>D</sub> =0.29A
Turn-on rise time(note 1)	t <sub>r</sub>			5	nS	
Turn-off delay time(note 1)	t <sub>d(off)</sub>			60	nS	
Turn-off fall time(note 1)	t <sub>f</sub>			35	nS	

Note:1. These parameters have no way to verify..

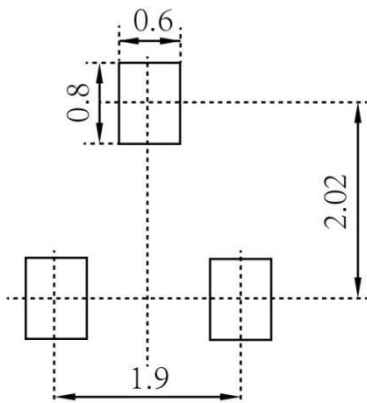
N-CHANNEL MOSFET

SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 Suggested Pad Layout



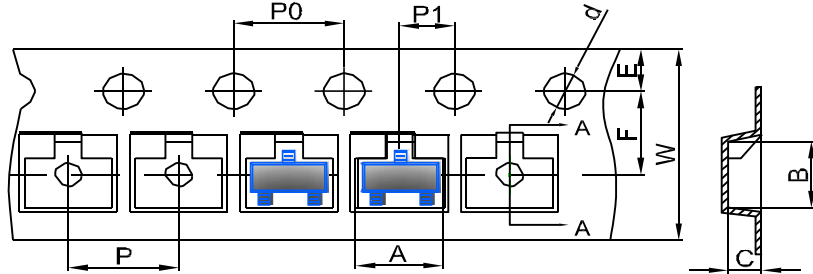
**Note:**

1. Controlling dimension: in millimeters
2. General tolerance:  $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

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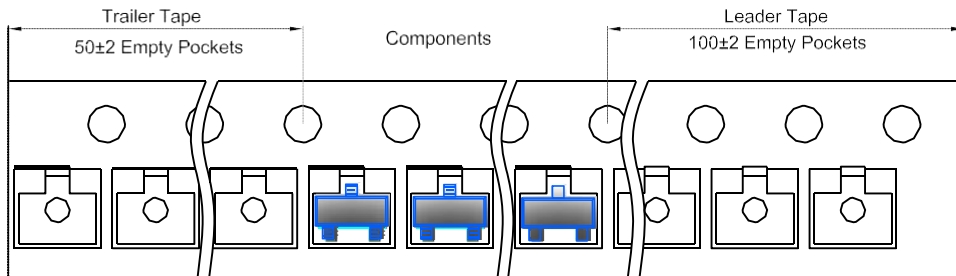
**SOT-23 Tape and Reel**

**SOT-23 Embossed Carrier Tape**

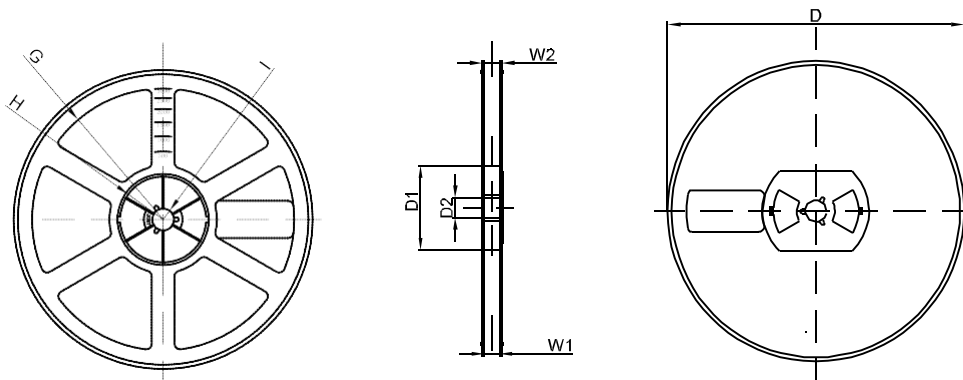


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

**SOT-23 Tape Leader and Trailer**



**SOT-23 Reel**



DIMENSIONS ARE IN MILLIMETER								
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7" DIA	Ø178	54.40	13.00	R78	R25.60	R6.50	9.50	12.30
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1