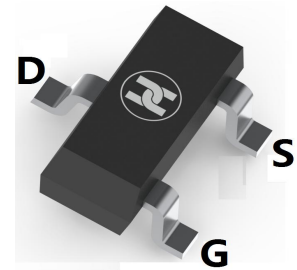
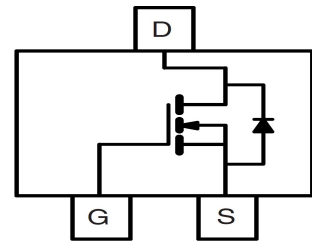


**LOW VOLTAGE MOSFET (N-CHANNEL)**
**FEATURES**

- Ultra low on-resistance:  $V_{DS}=30V, R_{DS(ON)} \leq 28m\Omega @ V_{GS}=10V, I_D=5.8A$
- For PWM application
- For Load switch application
- Surface Mount device


**SOT-23**
**MECHANICAL DATA**

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

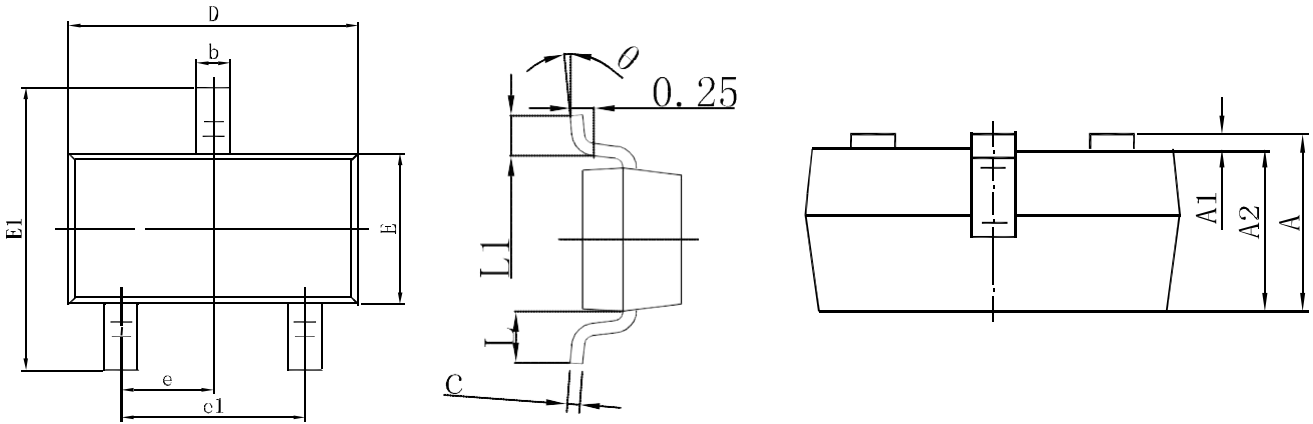

**MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$  unless otherwise noted)**

Parameter	Symbol	Value	Unit	
Drain-source voltage	$V_{DS}$	30	V	
Gate-source voltage	$V_{GS}$	$\pm 12$	V	
Continuous drain current	$T_A=25^\circ\text{C}$	$I_D$	5.8	A
	$T_A=70^\circ\text{C}$	$I_D$	4.9	A
Pulsed drain current	$I_{DM}^*$	30	A	
Power dissipation	$T_A=25^\circ\text{C}$	$P_D$	1.40	W
	$T_A=70^\circ\text{C}$	$P_D$	1	W
Thermal resistance from Junction to ambient	$R_{\theta JA}$	125	$^\circ\text{C/W}$	
Junction temperature	$T_J$	150	$^\circ\text{C}$	
Storage temperature	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$	

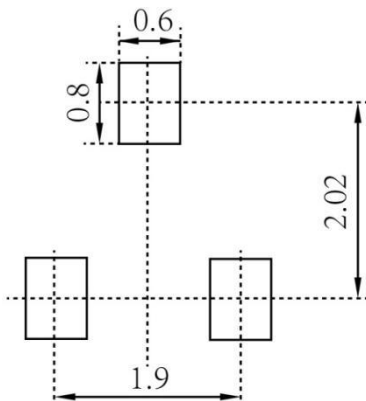
**LOW VOLTAGE MOSFET (N-CHANNEL)**
**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Drain-Source breakdown voltage	V <sub>(BR)DSS</sub> *	30			V	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA
Zero gate voltage drain current	I <sub>DSS</sub> *			1	uA	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V
Gate-body leakage current	I <sub>GSS</sub> *			±100	nA	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V
Gate-threshold voltage	V <sub>GS(th)</sub> *	0.5	0.8	1	V	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA
Drain-source on-resistance)	R <sub>DS(ON)</sub> *		23	28	mΩ	V <sub>GS</sub> =10V, I <sub>D</sub> =5.8A
			26	33	mΩ	V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A
			35	42	mΩ	V <sub>GS</sub> =2.5V, I <sub>D</sub> =4A
			54	72	mΩ	V <sub>GS</sub> =1.8V, I <sub>D</sub> =3A
On-State Drain Current	I <sub>D(ON)</sub> *	30			A	V <sub>DS</sub> =5V, V <sub>GS</sub> =10V
Forward transconductance	g <sub>FS</sub>	12	17		S	V <sub>DS</sub> =5V, I <sub>D</sub> =5A
Gate resistance	R <sub>g</sub>		1.3		Ω	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz
Input capacitance	C <sub>iss</sub>		767		pF	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz
Output capacitance	C <sub>oss</sub>		111		pF	
Reverse transfer capacitance	C <sub>rss</sub>		82		pF	
Turn-on delay time	t <sub>d(on)</sub>		5		nS	V <sub>DS</sub> =15V, V <sub>GS</sub> =10V, R <sub>GEN</sub> =6Ω, R <sub>L</sub> =2.7Ω
Turn-on rise time	t <sub>r</sub>		5.5		nS	
Turn-off delay time	t <sub>d(off)</sub>		39		nS	
Turn-off fall time	t <sub>f</sub>		4.7		nS	
Total gate charge	Q <sub>g</sub>		10		nC	V <sub>DS</sub> =15V, V <sub>GS</sub> =10V, I <sub>D</sub> =3.6A
Gate-source charge	Q <sub>gs</sub>		1.2		nC	
Gate-drain charge	Q <sub>gd</sub>		3.1		nC	
Diode forward voltage	V <sub>SD</sub>		0.66	1	V	I <sub>S</sub> =1A, V <sub>GS</sub> =0V
Diode forward current	I <sub>S</sub>			2.5	A	
Body Diode Reverse Recovery Time	t <sub>rr</sub>		15		nS	I <sub>F</sub> =5A, dI/dt=100A/us
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>		7.1		nC	I <sub>F</sub> =5A, dI/dt=100A/us

\*Pulse test ; Pulse width ≤80μs, Duty cycle ≤ 0.5% .

**LOW VOLTAGE MOSFET (N-CHANNEL)**
**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°

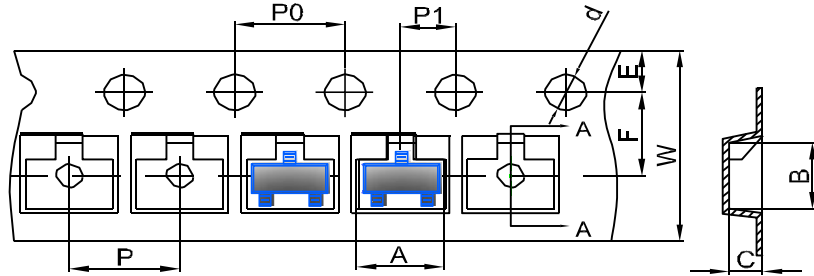
**SOT-23 Suggested Pad Layout**

**Note:**

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

LOW VOLTAGE MOSFET (N-CHANNEL)

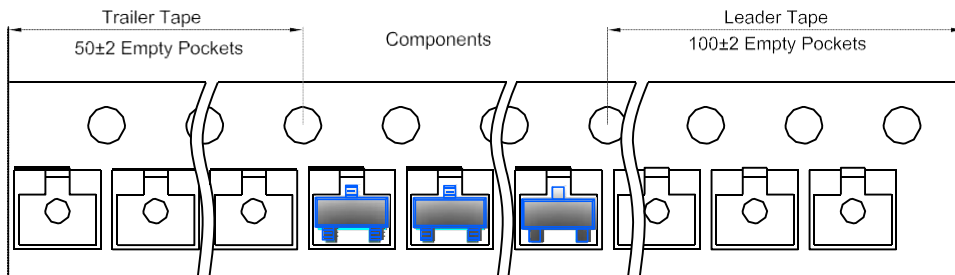
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

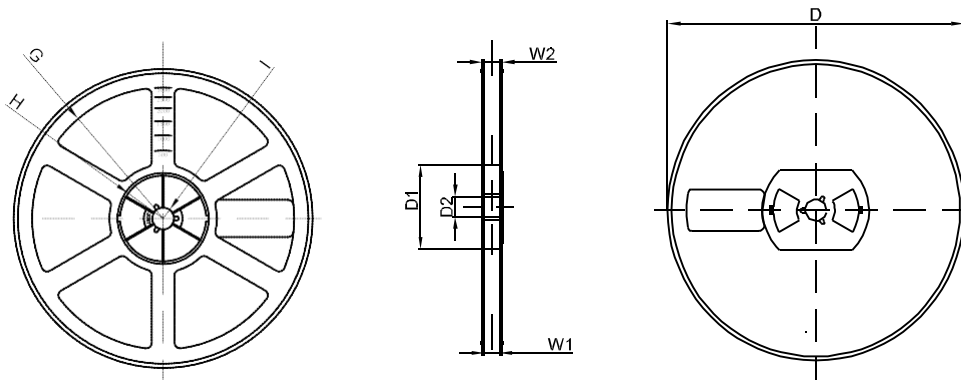


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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