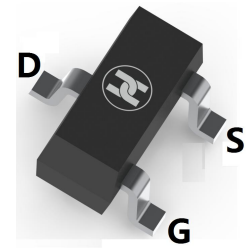
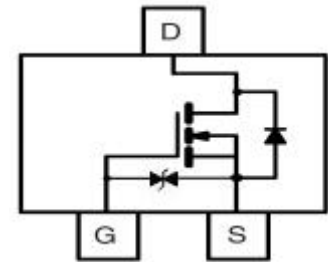


**MOSFET (N-CHANNEL)**
**FEATURES**

- Low On-Resistance:  $R_{DS(ON)}$
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage


**SOT-23**

**MECHANICAL DATA**

- Case: SOT-23
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.008 grams (approximate)
- Marking: 72K

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

Parameter	Symbol	Value	Unit
Drain-source voltage	$V_{DS}$	60	V
Gate-source voltage	$V_{GS}$	$\pm 20\text{V}$	V
Continuous drain current	$I_D$	340	mA
Pulsed drain current (Note 1)	$I_{DM}$	800	mA
Power dissipation	$P_D$	0.35	W
Thermal resistance from Junction to ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Junction And Storage temperature Range	$T_J, T_{STG}$	-65 ~ +150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  unless otherwise specified)**

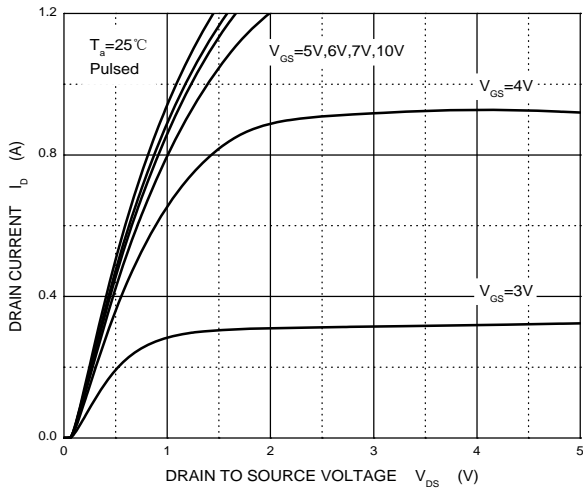
Parameter	Symb	Min	Typ	Max	Unit	Conditions
<b>Static Characteristics</b>						
Drain-Source breakdown voltage	$V_{(BR)DSS}$	60			V	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$
Gate-threshold voltage (note 1)	$V_{GS(\theta)}$	1	1.5	2.0	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Zero gate voltage drain current	$I_{DSS}$			1	$\mu\text{A}$	$V_{DS}=60\text{V}, V_{GS}=0\text{V}$
Gate-body leakage current	$I_{GSS}$			$\pm 10$	$\mu\text{A}$	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$
				$\pm 200$	nA	$V_{DS}=0\text{V}, V_{GS}=\pm 10\text{V}$
				$\pm 100$	nA	$V_{DS}=0\text{V}, V_{GS}=\pm 5\text{V}$
Drain-source on-resistance (note 1)	$R_{DS(ON)}$		1.0	1.7	$\Omega$	$V_{GS}=10\text{V}, I_D=0.3\text{A}$
			1.3	2.6	$\Omega$	$V_{GS}=4.5\text{V}, I_D=0.2\text{A}$
Diode forward voltage (note 1)	$V_{SD}$			1.5	V	$I_S=0.3\text{A}, V_{GS}=0\text{V}$
Gate-Source Breakdown Voltage	$BV_{GSO}$	$\pm 21.5$		$\pm 30$	V	$I_{GS}=\pm 1\text{mA}$ (Open Drain)
Recovered charge	$Q_r$		30		nC	$V_{GS}=0\text{V}, I_S=0.3\text{A}, V_R=25\text{V}, dI_S/dt=-100\text{A}/\mu\text{S}$
<b>Dynamic Characteristics</b>						
Input capacitance	$C_{iss}$			40	pF	$V_{DS}=10\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$
Output capacitance	$C_{oss}$			30	pF	
Reverse transfer capacitance	$C_{rss}$			10	pF	
<b>Switching Characteristics</b>						
Turn-on delay time	$t_{d(on)}$		3		nS	$V_{DD}=50\text{V}, V_{GS}=10\text{V}, R_G=50\Omega, R_{GS}=50\Omega, R_L=250\Omega$
Turn-off delay time	$t_{d(off)}$		15		nS	
Reverse recovery time	$t_{rr}$		26		nS	$V_{GS}=0\text{V}, I_S=0.3\text{A}, V_R=25\text{V}, dI_S/dt=-100\text{A}/\mu\text{S}$

Note:1. Pulse test ; Pulse width  $\leq 300\mu\text{s}$ , Duty cycle  $\leq 2\%$  .

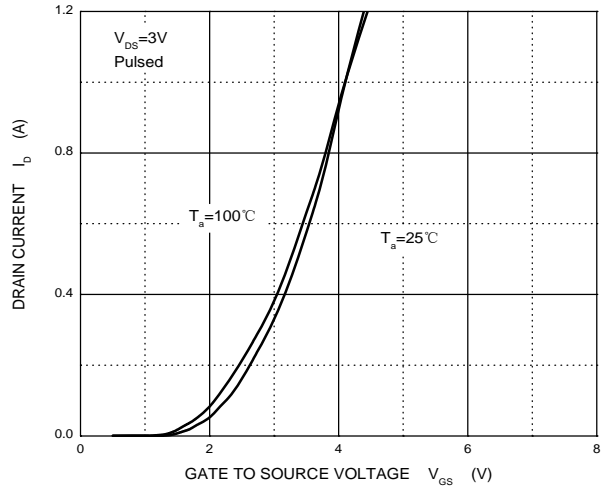
**MOSFET (N-CHANNEL)**

**Typical Characteristics**

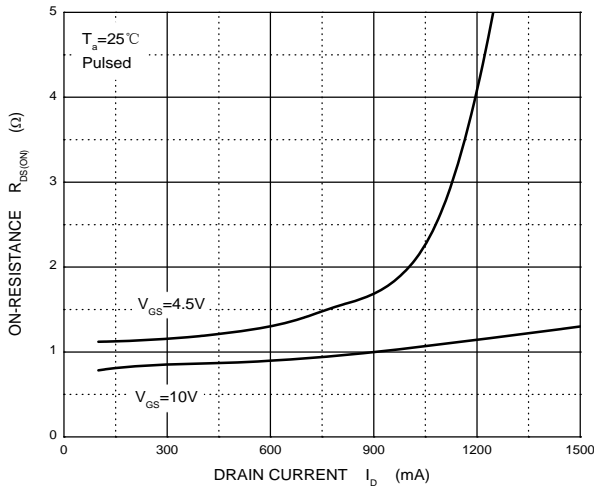
**Output Characteristics**



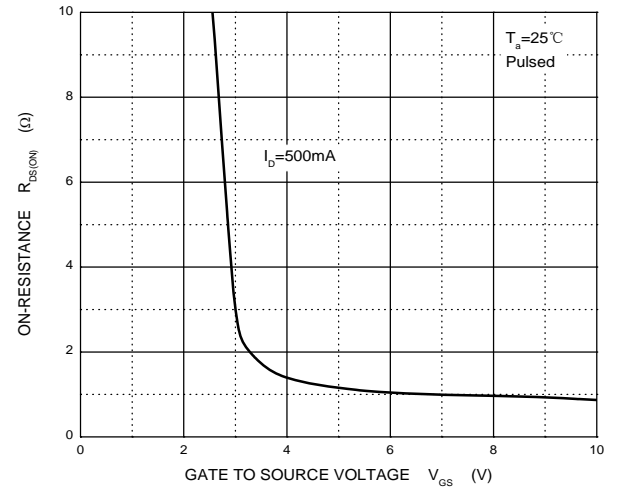
**Transfer Characteristics**



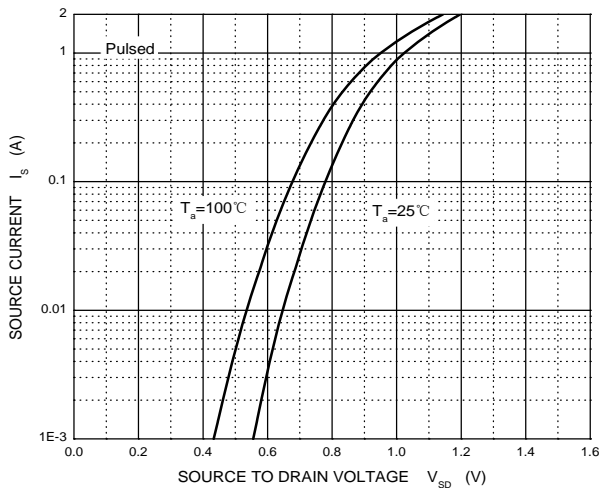
**$R_{DS(ON)}$  —  $I_D$**



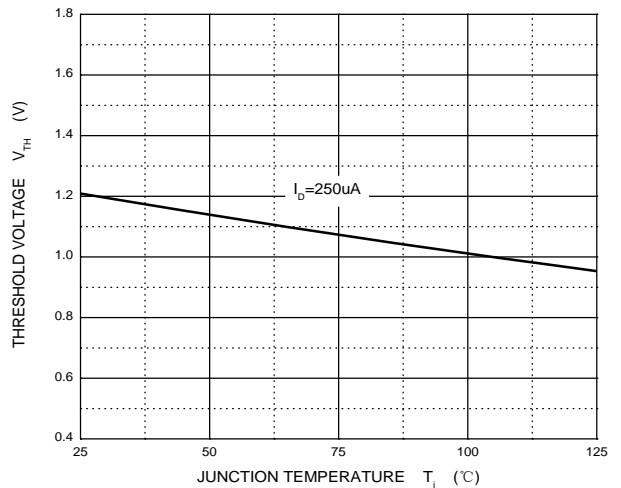
**$R_{DS(ON)}$  —  $V_{GS}$**

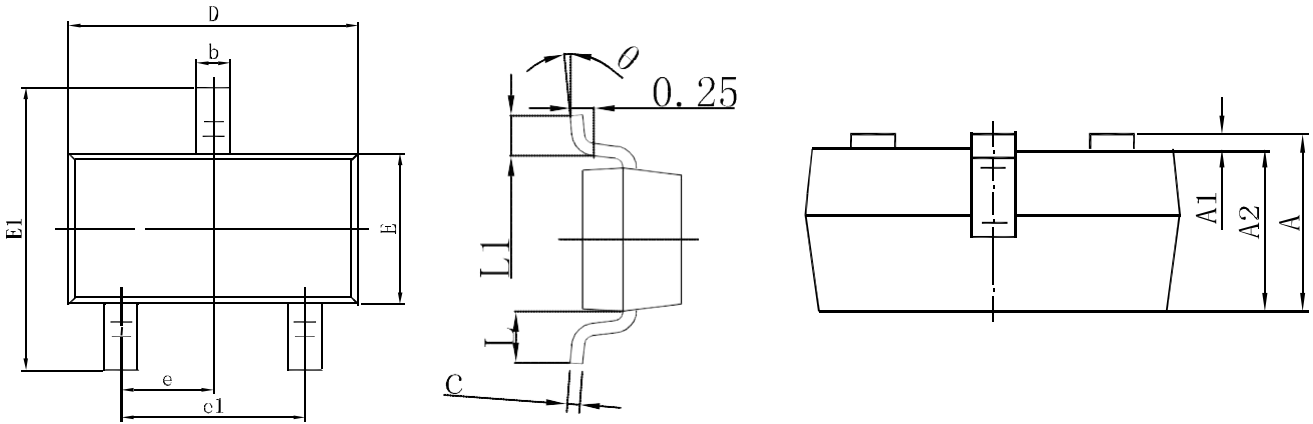


**$I_S$  —  $V_{SD}$**

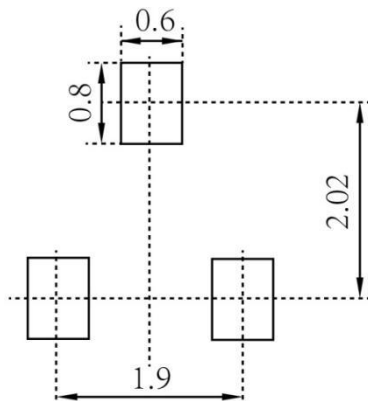


**Threshold Voltage**



**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
$\theta$	0°	8°	0°	8°

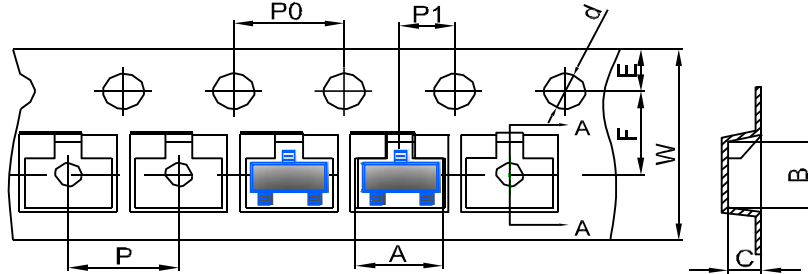
**SOT-23 Suggested Pad Layout**

**Note:**

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

MOSFET (N-CHANNEL)

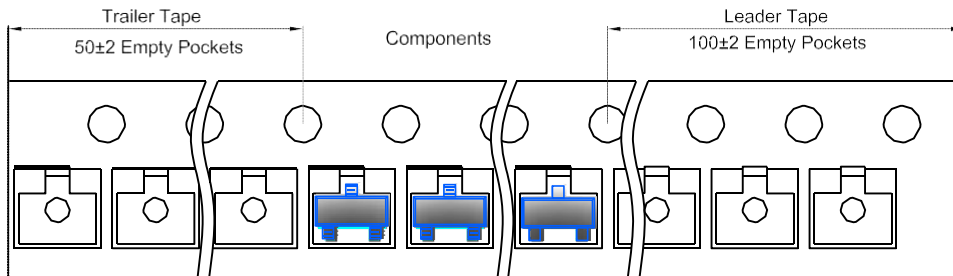
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

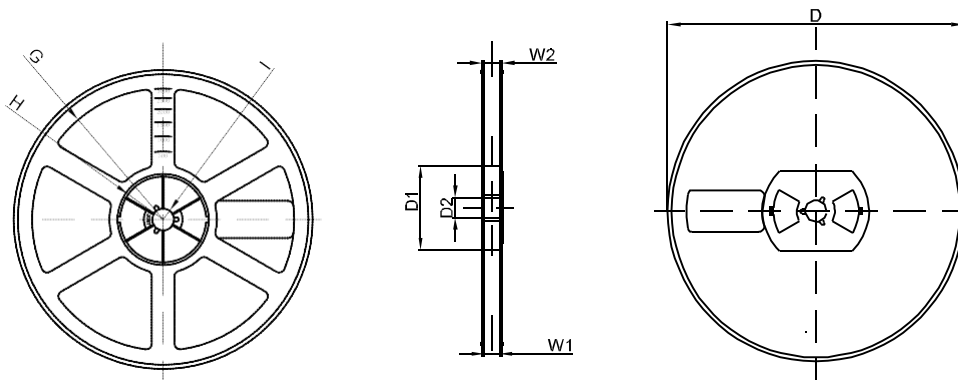


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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