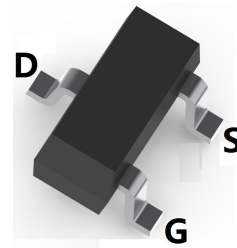


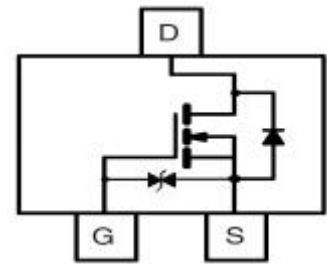
MOSFET (N-CHANNEL)

FEATURES

- Low on-resistance
- Very fast switching
- Low voltage drive makes this device ideal for Portable equipment
- For Battery management and High speed switch and Low power DC to DC converter applications
- Sub-miniature surface mount package



SOT-23 (Marking:KN)



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}	$\pm 20\text{V}$	V
Continuous drain current	I_D	0.1	A
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	T_J, T_{STG}	$-55 \sim +150$	$^\circ\text{C}$

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

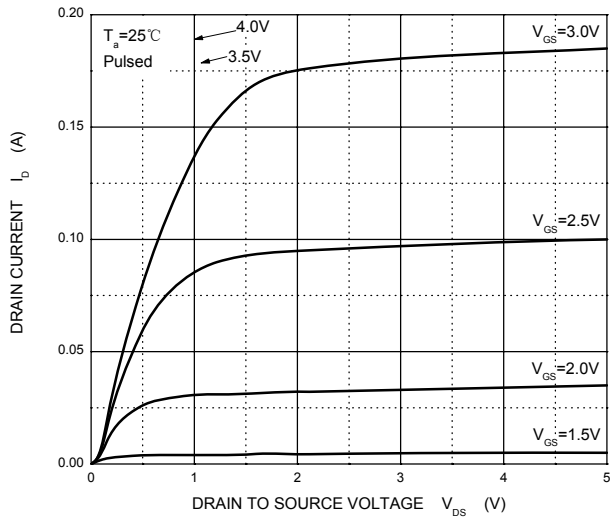
Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Off Characteristics						
Drain-Source breakdown voltage	V _{(BR)DSS}	30			V	V _{GS} =0V, I _D =10μA
Zero gate voltage drain current	I _{DSS}			0.2	μA	V _{DS} =30V, V _{GS} =0V
Gate-body leakage current	I _{GSS}			±2	μA	V _{DS} =0V, V _{GS} =±20V
Gate-threshold voltage (note 1)	V _{GS(th)}	0.8		1.5	V	V _{DS} =3V, I _D =100μA
Drain-source on-resistance (note 1)	R _{DS(ON)}			8	Ω	V _{GS} =4V, I _D =10mA
				13	Ω	V _{GS} =2.5V, I _D =1mA
Forward transconductance (note 1)	g _{FS}	20			mS	V _{DS} =3V, I _D =10mA
Dynamic Characteristics						
Input capacitance	C _{iss}		13		pF	V _{DS} =5V, V _{GS} =0V, f=1MHz
Output capacitance	C _{Oss}		9		pF	
Reverse transfer capacitance	C _{rss}		4		pF	
Switching Characteristics						
Turn-on delay time	t _{d(on)}		15		nS	V _{DD} =5V, V _{GS} =5V, I _D =10mA, R _g =10Ω, R _L =500Ω
Turn-on rise time	t _r		35		nS	
Turn-off delay time	t _{d(off)}		80		nS	
Turn-off fall time	t _f		80		nS	

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

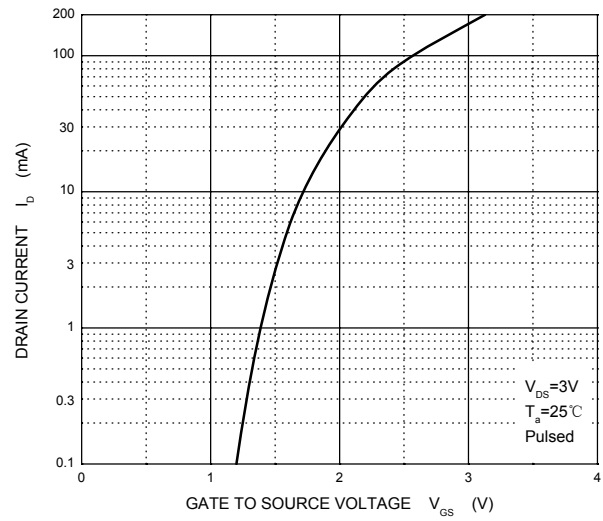
MOSFET (N-CHANNEL)

Typical Characteristics

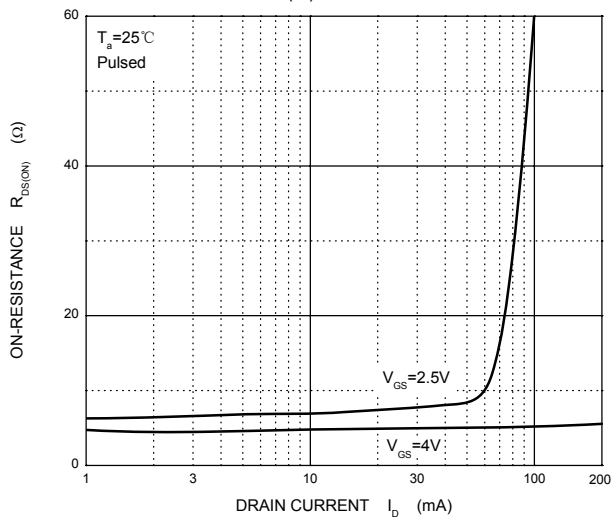
Output Characteristics



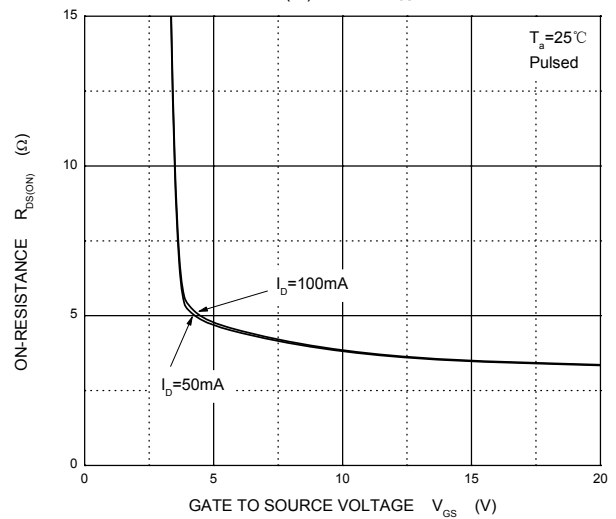
Transfer Characteristics



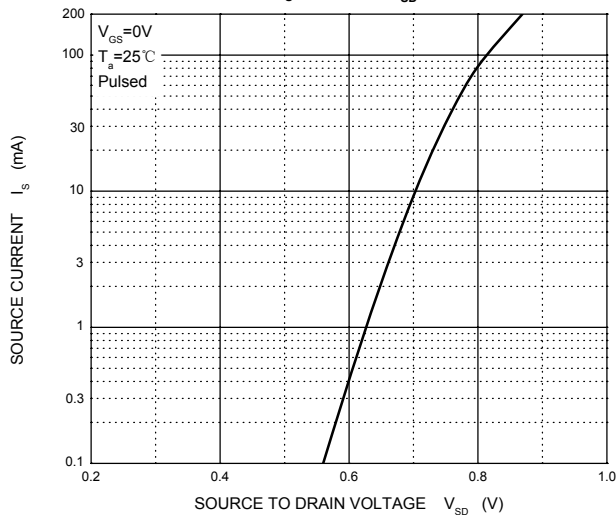
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}

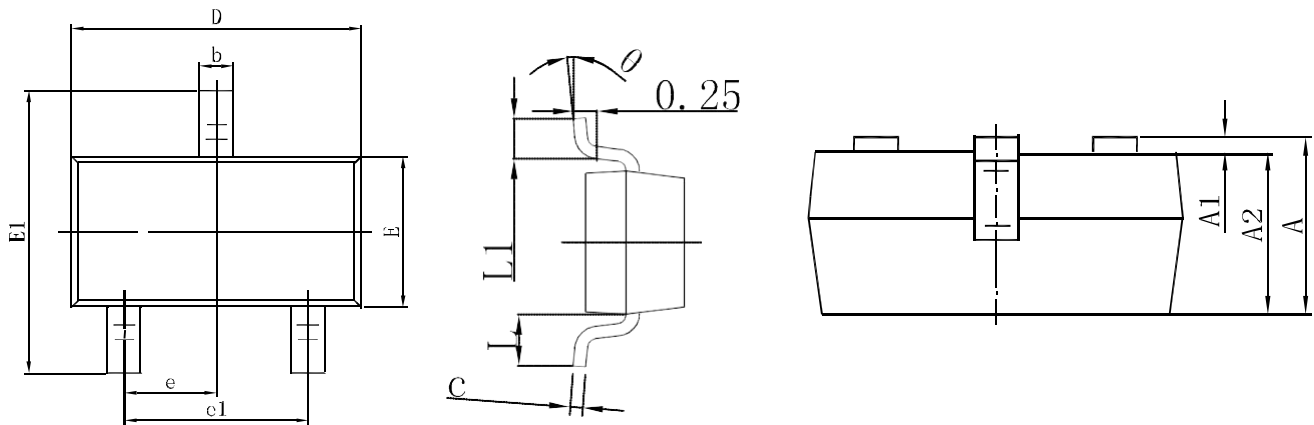


I_S — V_{SD}



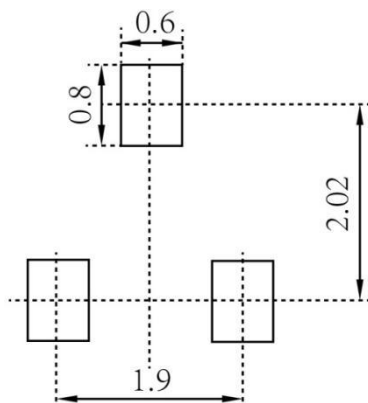
MOSFET (N-CHANNEL)

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



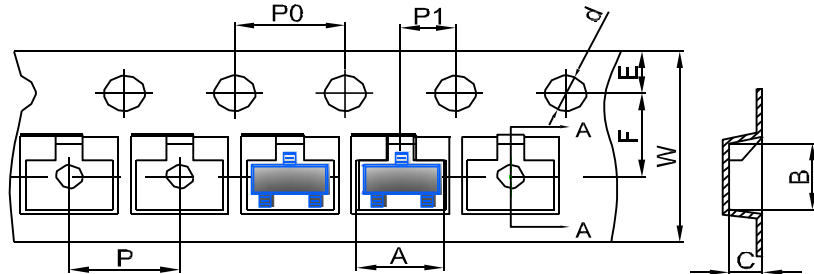
Note:

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

MOSFET (N-CHANNEL)

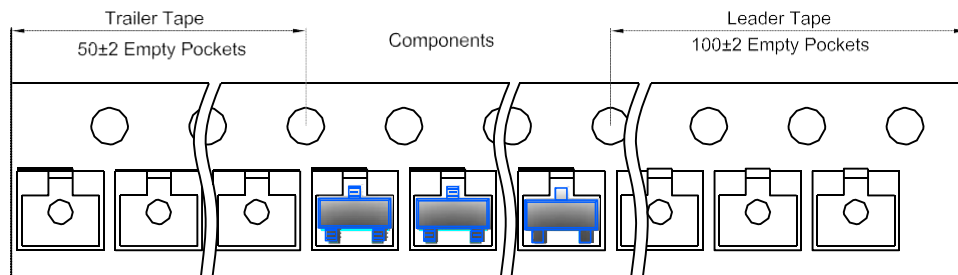
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

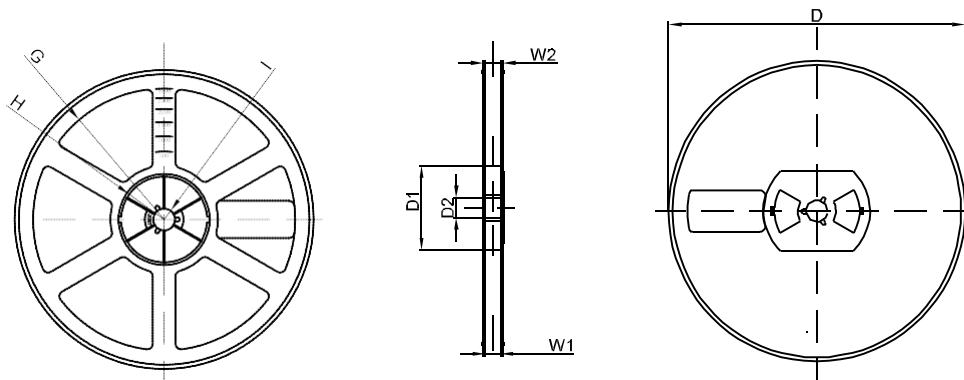


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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