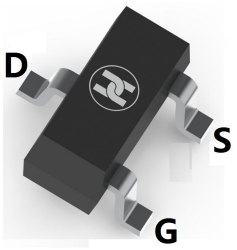
MOSFET (N-CHANNEL)

FEATURES

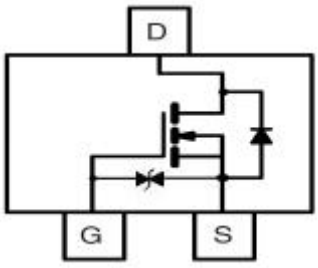
- Low on-resistance
- Very fast switching
- Low voltage drive makes this device ideal for Portable equipment
- For Battery management and High speed switch and Low power DC to DC converter applications
- Sub-miniature surface mount package



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°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	30	V
Gate-source voltage	V_{GS}	±20V	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	°C/W
Junction and Storage temperature	T_J,T_{STG}	-55 ~+150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25°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 ≤300μs, Duty cycle ≤ 2% .

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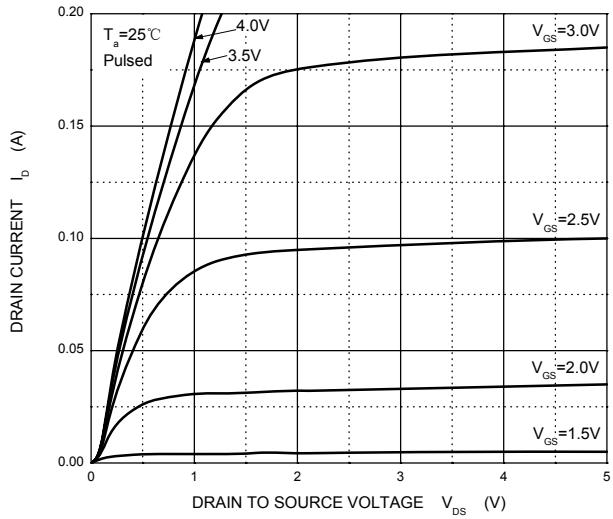
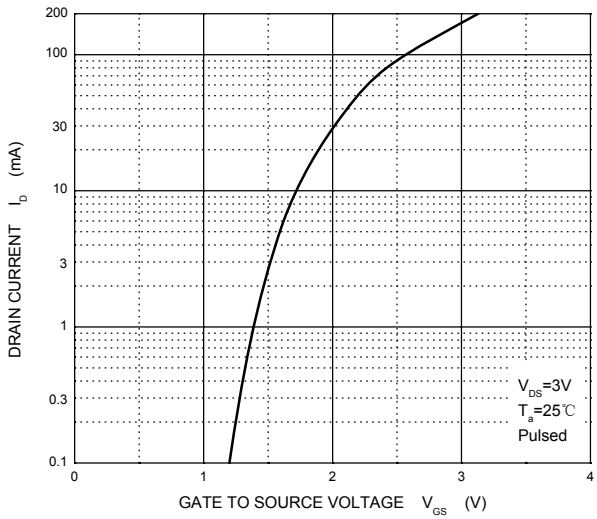
Typical Characteristics

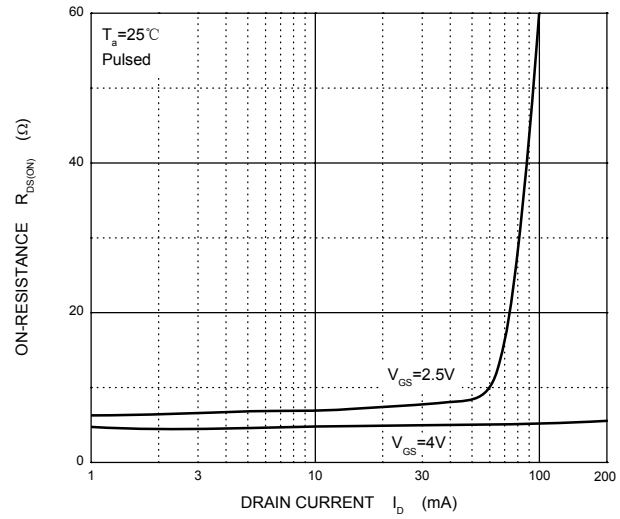
Output Characteristics



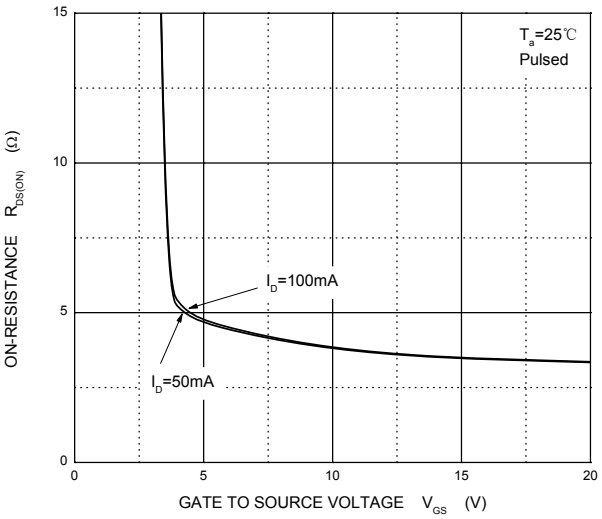
Transfer Characteristics



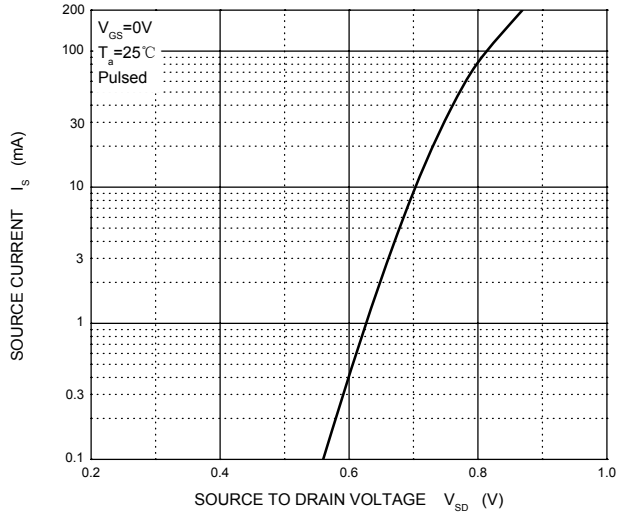
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



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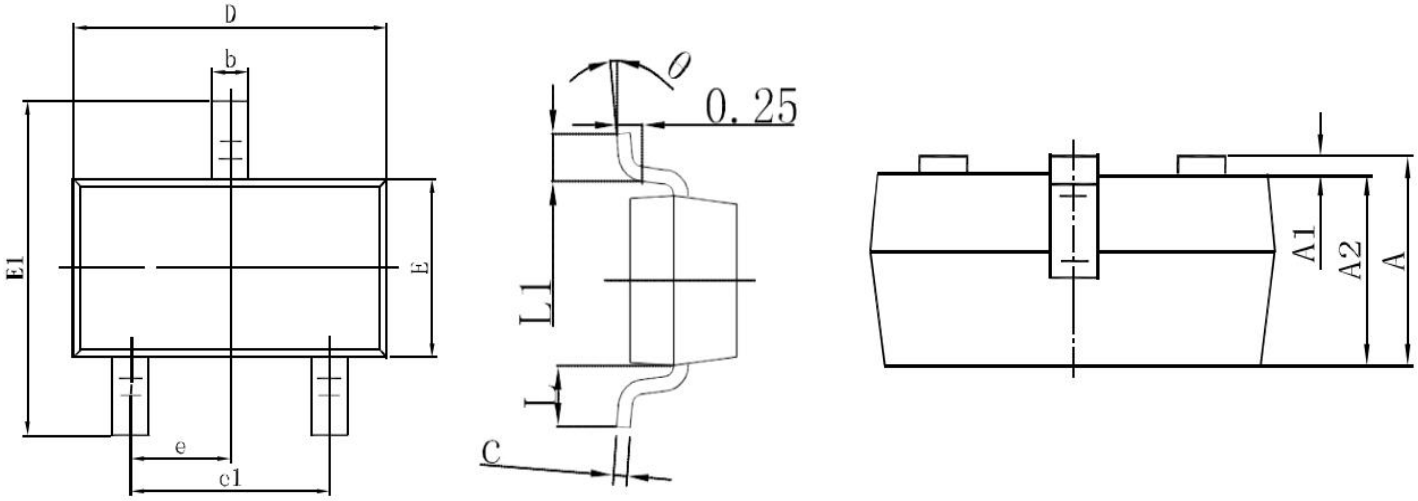
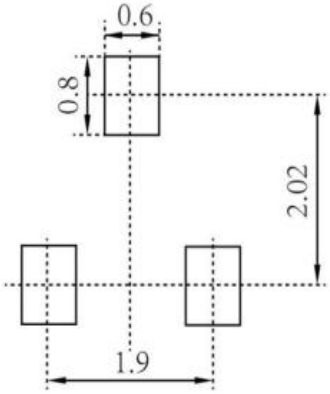
SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.354	0.453
A1	0.000	0.100	0.000	0.039
A2	0.900	1.050	0.354	0.413
b	0.300	0.500	0.118	0.197
c	0.080	1.150	0.031	0.453
D	2.900	3.100	1.142	1.220
E	1.200	1.400	0.472	0.551
E1	2.250	2.550	0.886	1.004
e	0.95REF		0.374REF	
e1	1.800	2.000	0.709	0.787
L	0.55REF		0.215REF	
L1	0.300	0.500	0.118	0.197

SOT-23 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference purposes only

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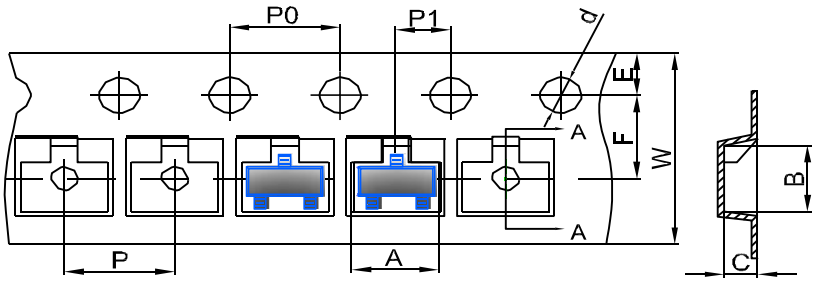
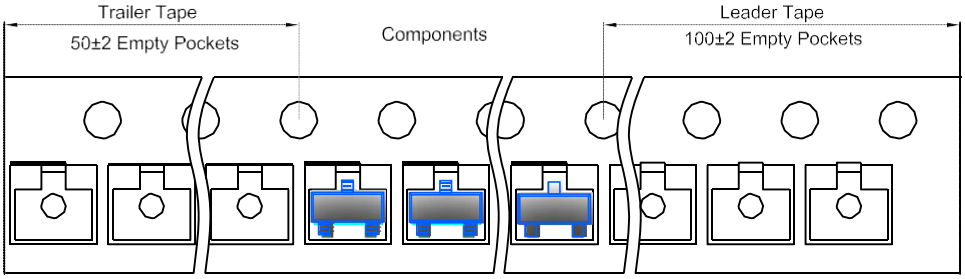
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

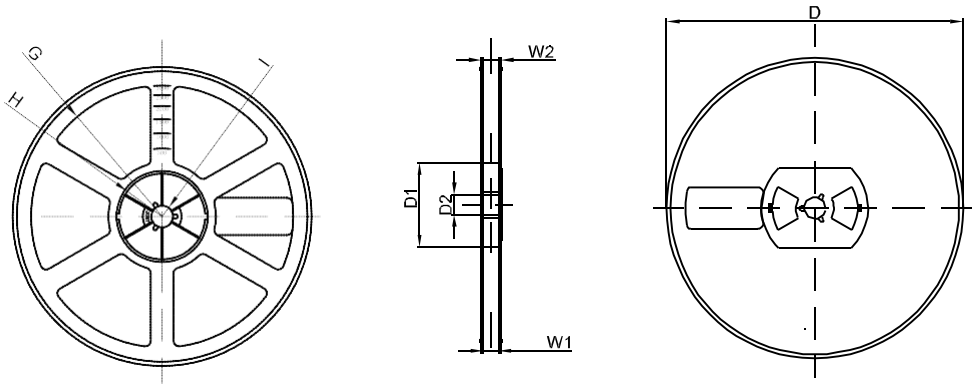


	DIMENSIONS ARE IN MILLIMETER									
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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