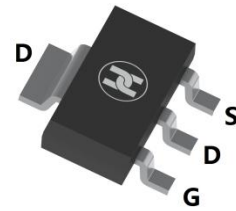
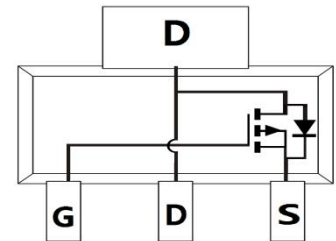


P-CHANNEL HIGH VOLTAGE MOSFET
FEATURES

- $V_{DS}=-250V, R_{DS(ON)}\leq 14\Omega @ V_{GS}=-10V, I_D=-265mA$
- High Voltage, Low Threshold and Fast Switching
- Low On-resistance and Low Gate Drive
- For Electronic Hook Switches, Earth Recall and Dialling Switches
- For Telecom Call Routers and High Voltage Power MOSFET Drivers
- Surface Mount device


SOT-223

MECHANICAL DATA

- Case: SOT-223
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 0.112 grams (approximate)

MAXIMUM RATINGS ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	-250	V
Gate-source voltage	V_{GS}	± 40	V
Continuous drain current	I_D	$V_{GS}=-10V, T_A=25^\circ C(1)$	-265
		$V_{GS}=-10V, T_A=70^\circ C(1)$	-212
Pulsed drain current(3)	I_{DM}	-1.0	A
Continuous Source Current (Body Diode)	I_S	-0.75	A
Pulsed Source Current (Body Diode)	I_{SM}	-1	A
Power dissipation	P_D	2	W
Thermal Resistance, Junction to Ambient (1)	$R_{\theta JA}$	63	$^\circ C/W$
Thermal Resistance, Junction to Ambient (2)		26	$^\circ C/W$
Operating and Storage temperature	T_J, T_{STG}	-55 ~ +150	$^\circ C$

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

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Drain-Source breakdown voltage	$V_{(BR)DSS}$	-250	-285		V	$V_{GS}=0V, I_D=-1mA$
Zero gate voltage drain current	I_{DSS}		-30	-500	nA	$V_{DS}=-250V, V_{GS}=0V,$
Gate-body leakage current	I_{GSS}		± 1	± 100	nA	$V_{DS}=0V, V_{GS}=\pm 40V$
Gate-threshold voltage	$V_{GS(th)}$	-0.8	-1.5	-2.0	V	$V_{DS}=V_{GS}, I_D=-1mA$
Drain-source on-resistance(4)	$R_{DS(ON)}$		10	14	Ω	$V_{GS}=-10V, I_D=-200mA$
			13	18	Ω	$V_{GS}=-3.5V, I_D=-100mA$
Forward Trans-conductance (6)	g_{fs}	80	200		mS	$V_{DS}=-10V, I_D=-150mA$
Diode Forward Voltage (4)	V_{SD}			0.97	V	$I_S=-200mA, V_{GS}=0V, T_J=25^\circ C$
Input capacitance (6)	C_{iss}		73		pF	$V_{DS}=-25V, V_{GS}=0V, f=1MHz$
Output capacitance(6)	C_{oss}		12.8		pF	
Reverse transfer capacitance(6)	C_{rss}		3.91		pF	
Total Gate Charge(5,6)	Q_g		2.45	3.45	nC	$V_{DS}=-25V, V_{GS}=-10V, I_D=-200mA$
Gate-Source Charge(5,6)	Q_{gs}		0.22	0.31	nC	
Gate-Drain Charge(5,6)	Q_{gd}		0.45	0.63	nC	
Turn-on delay time(5,6)	$t_{d(on)}$		1.53		nS	$V_{DD}=-30V, I_D=-200mA, V_{GS}=-10V, R_G=50\Omega$
Turn-on rise time(5,6)	t_r		3.78		nS	
Turn-off delay time(5,6)	$t_{d(off)}$		17.5		nS	
Turn-off fall time(5,6)	t_f		7.85		nS	
Reverse Recovery Time(6)	t_{rr}		205	290	nS	
Reverse Recovery Charge(6)	Q_{rr}		21	29	nC	$I_f=-200mA, di/dt=100A/\mu s, T_J = +25^\circ C$

Notes: 1. For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

2. For a device surface mounted on FR4 PCB measured at $t \leq 5$ secs.

3. Repetitive rating 25mm x 25mm FR4 PCB, $D=0.02$ pulse width=300 μs - pulse width limited by maximum junction temperature.

4. Measured under pulsed conditions. Pulse width = 300 μs ; duty cycles $\leq 2\%$.

5. Switching characteristics are independent of operating junction temperature.

6. For design aid only, not subject to production testing.

P-CHANNEL HIGH VOLTAGE MOSFET

Typical Characteristics

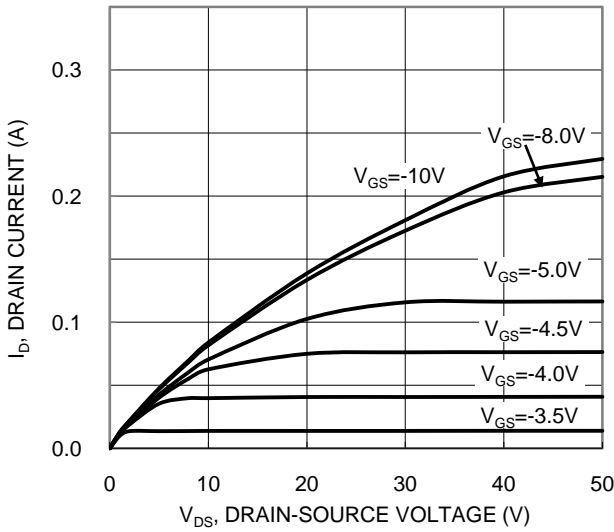


Figure 1. Typical Output Characteristic

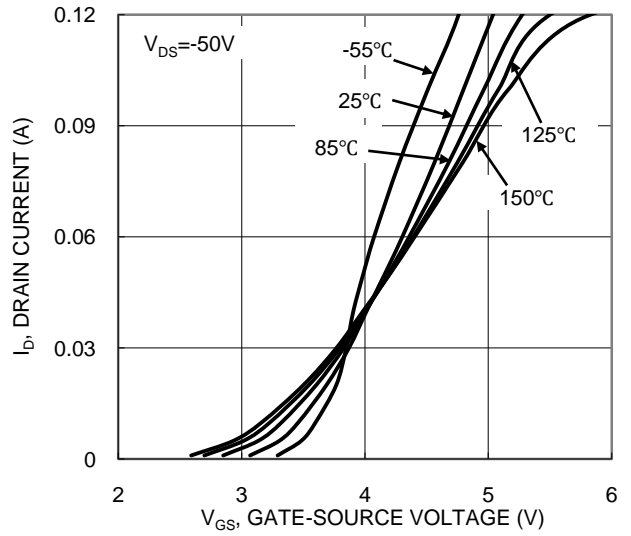


Figure 2. Typical Transfer Characteristic

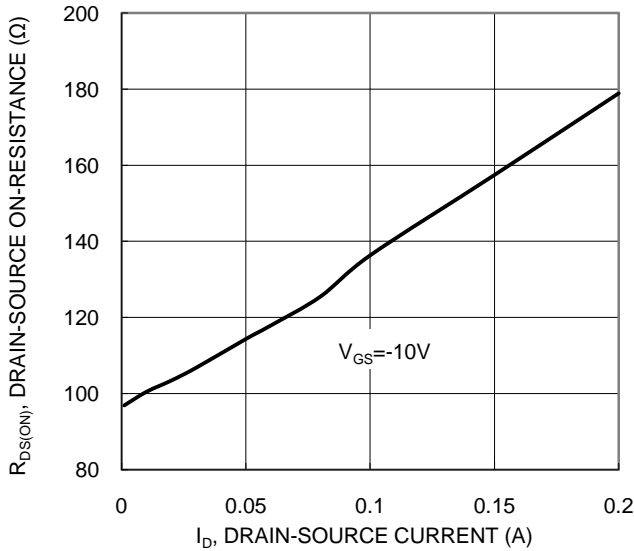


Figure 3. Typical On-Resistance vs Drain Current and Gate Voltage

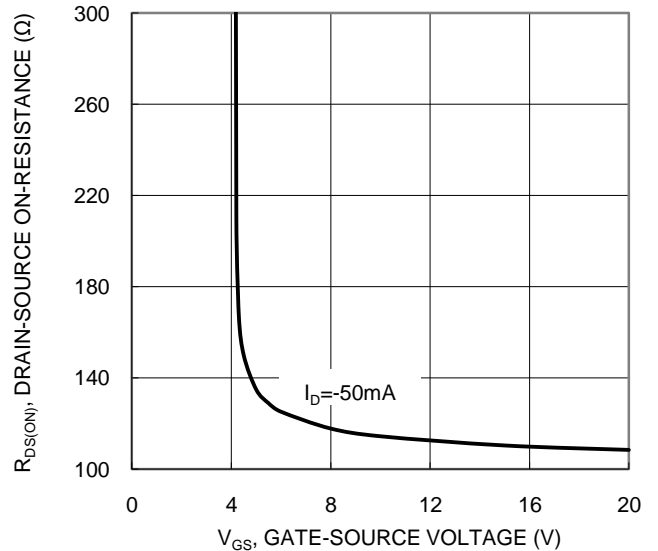


Figure 4. Typical Transfer Characteristic

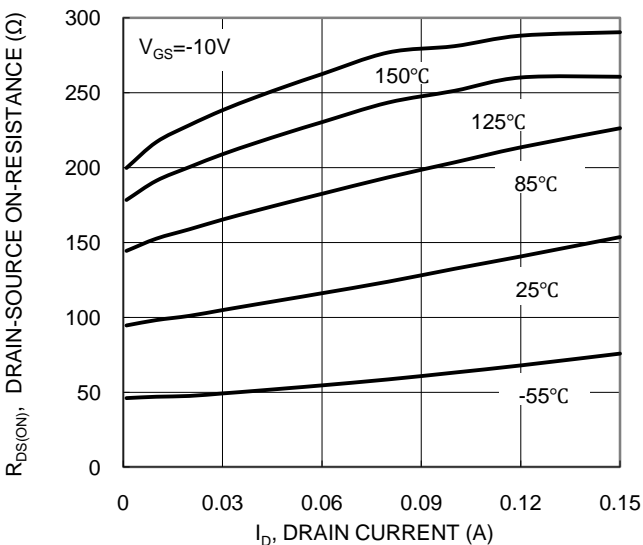


Figure 5. Typical On-Resistance vs Drain Current and Junction Temperature

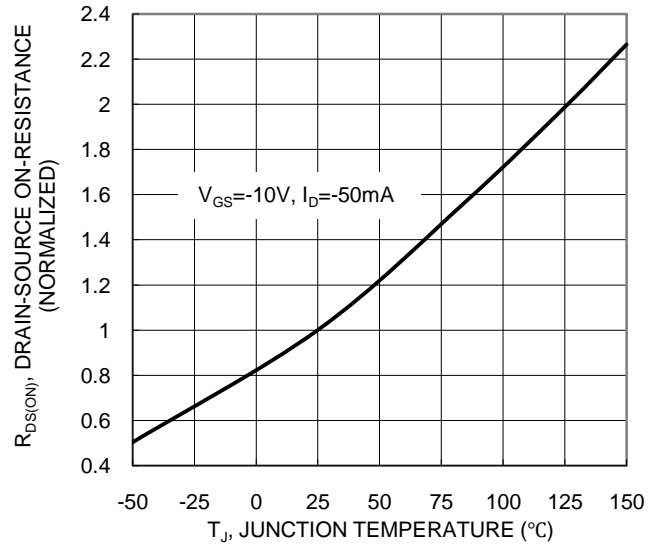


Figure 6. On-Resistance Variation with Junction Temperature

P-CHANNEL HIGH VOLTAGE MOSFET

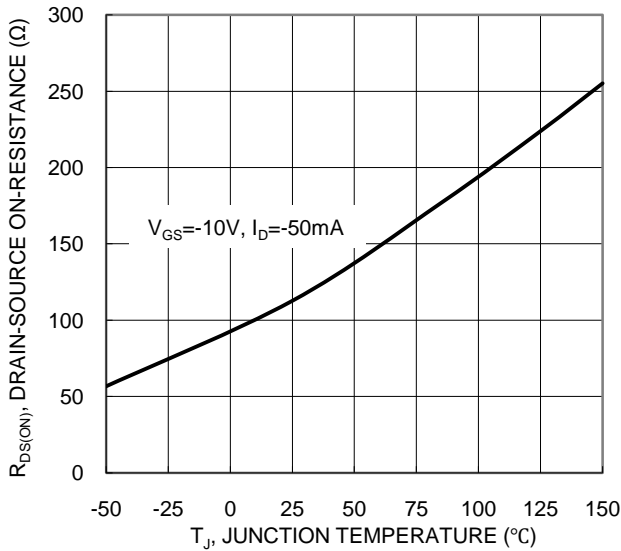


Figure 7. On-Resistance Variation with Junction Temperature

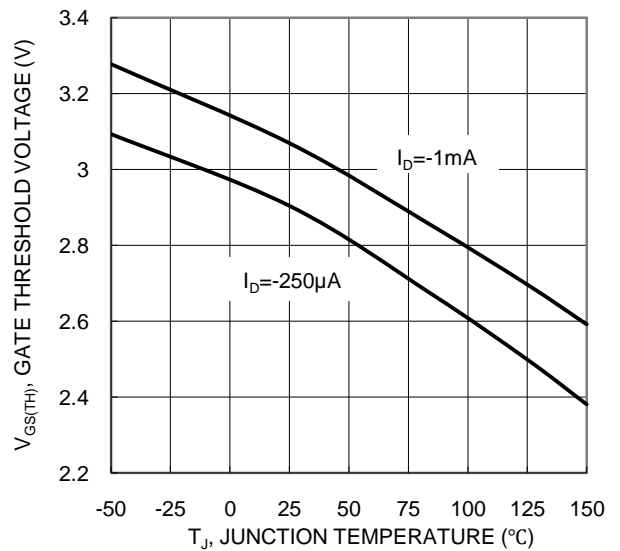


Figure 8. Gate Threshold Variation vs Junction Temperature

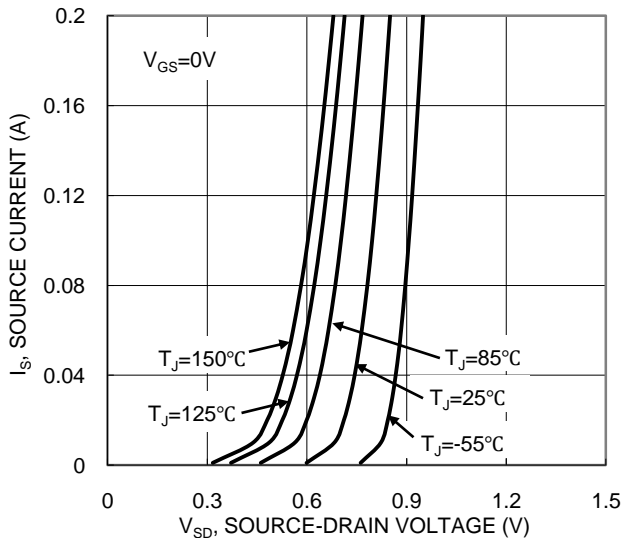


Figure 9. Diode Forward Voltage vs Current

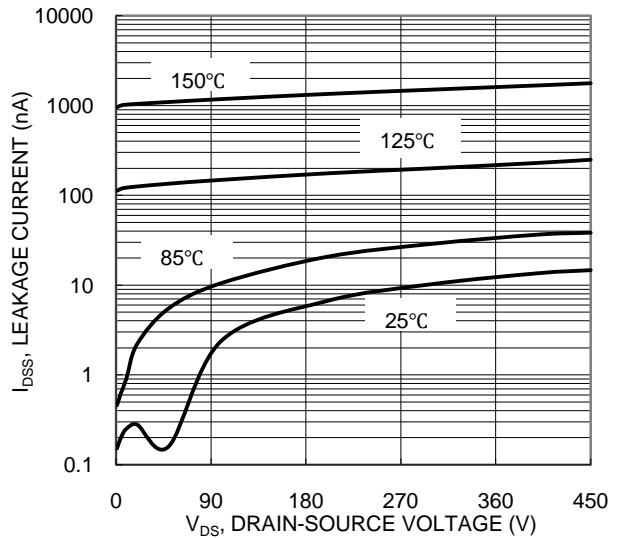


Figure 10. Typical Drain-Source Leakage Current vs Voltage

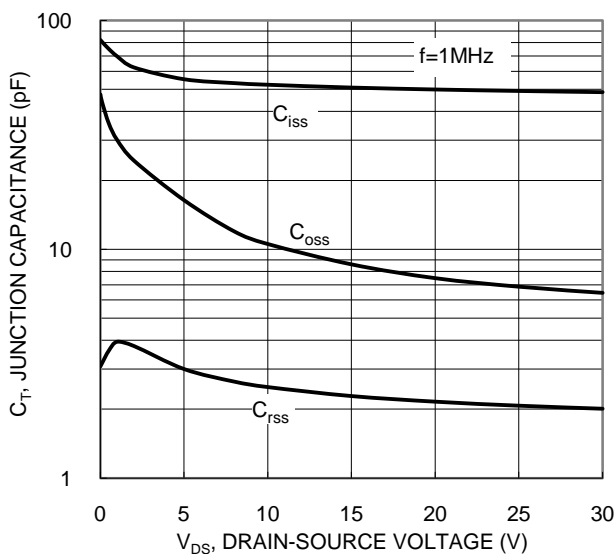


Figure 11. Typical Junction Capacitance

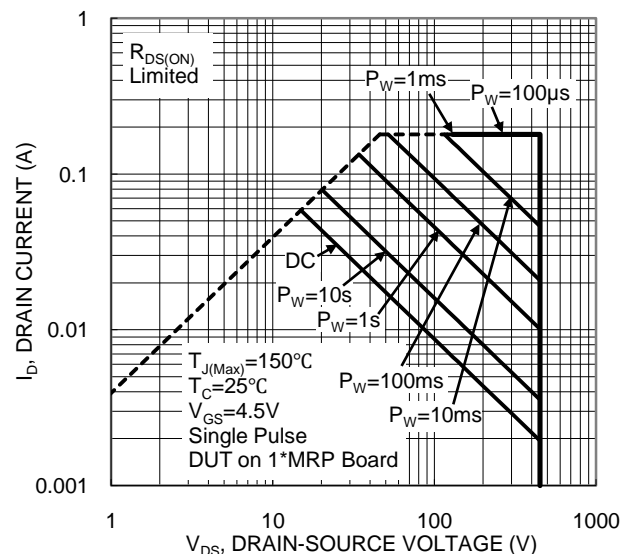


Figure 12. SOA, Safe Operation Area

P-CHANNEL HIGH VOLTAGE MOSFET

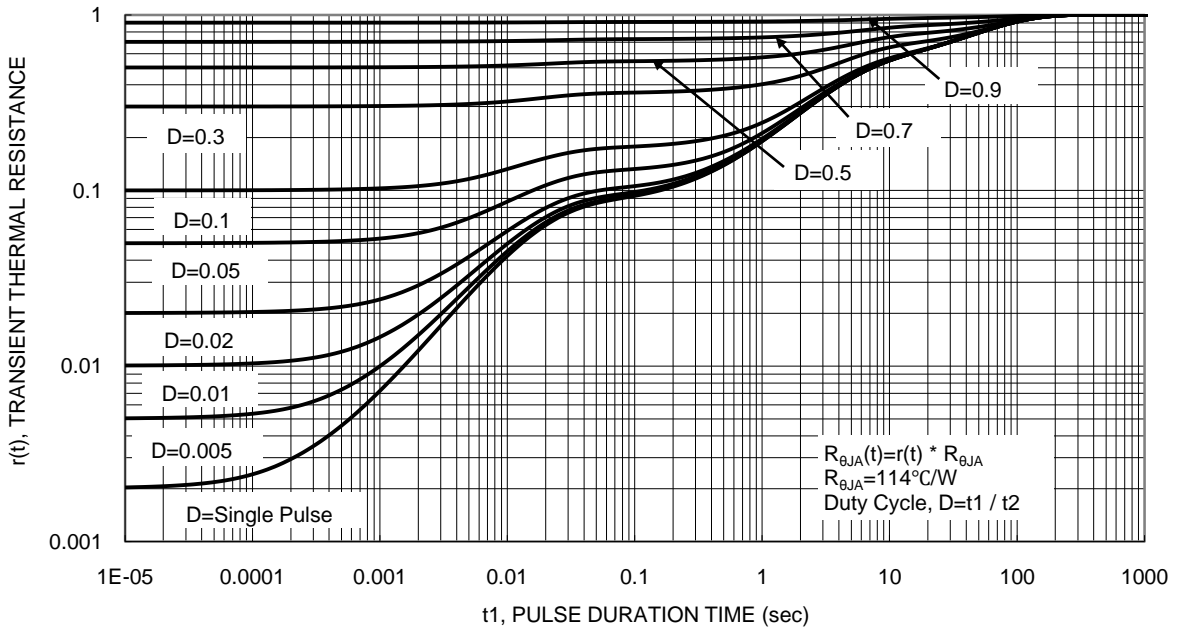
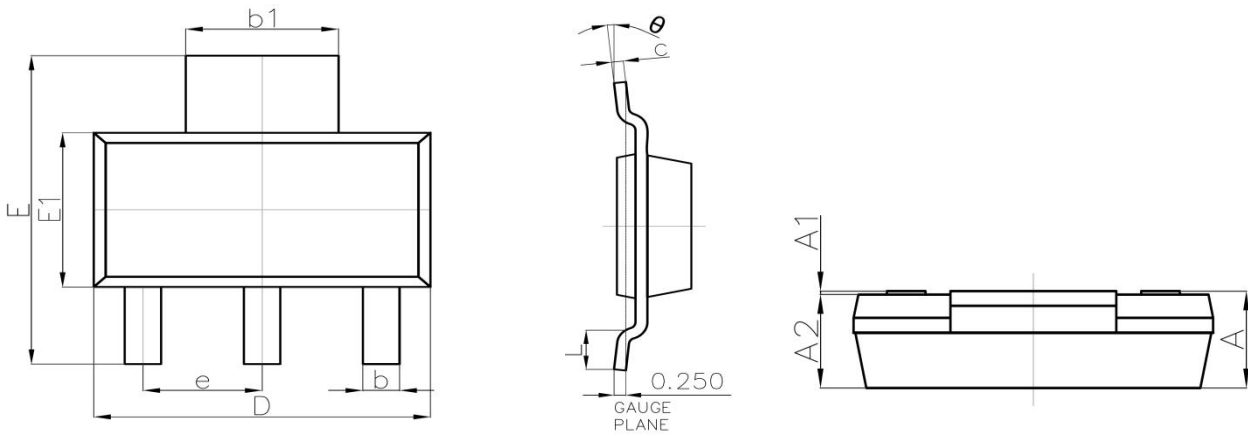
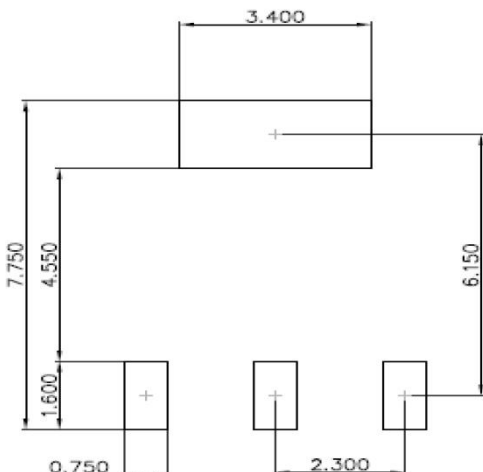


Figure 13. Transient Thermal Resistance

P-CHANNEL HIGH VOLTAGE MOSFET
SOT-223 Package Outline Dimensions


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	—	1.800	-----	0.071
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
b1	2.900	3.100	0.114	0.122
c	0.230	0.350	0.009	0.014
D	6.300	6.700	0.248	0.264
E	6.700	7.300	0.264	0.287
E1	3.300	3.700	0.130	0.146
e	2.300(BSC)		0.091(BSC)	
L	0.750	-----	0.030	-----
θ	0°	10°	0°	10°

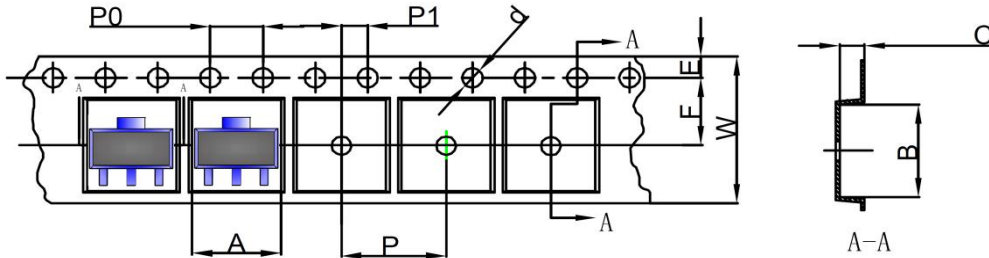
SOT-223 Suggested Pad Layout

Note:

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

P-CHANNEL HIGH VOLTAGE MOSFET

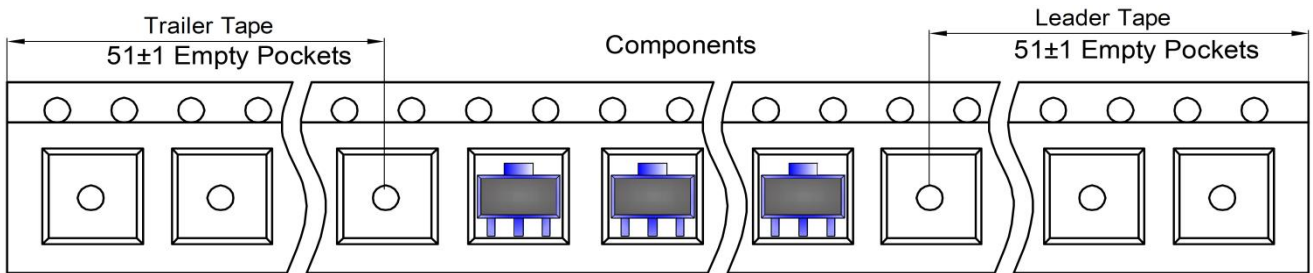
SOT-223 Tape and Reel

SOT-223 Embossed Carrier Tape

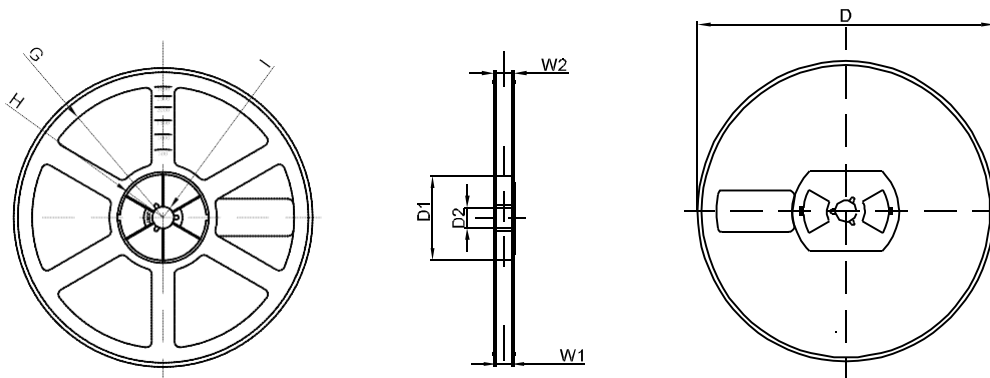


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-223	6.765	7.335	1.88	Ø1.50	1.75	5.50	4.00	4.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOT-223 Tape Leader and Trailer



SOT-223 Reel



DIMENSIONS ARE IN MILLIMETER								
REEL OPTION	D	D1	D2	G	H	I	W1	W2
13" DIA	Ø330.00	100.00	13.00	R151.00	R56.00	R6.50	12.40	17.60
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1