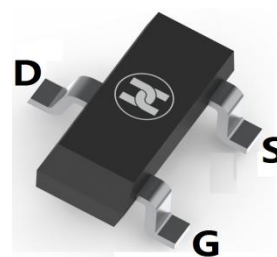
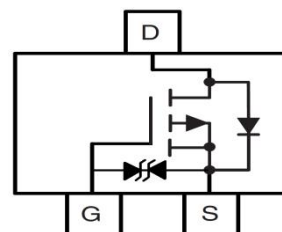


HIGH VOLTAGE MOSFET (P-CHANNEL)
FEATURES

- $V_{DS}=-100V, R_{DS(ON)} \leq 4.2\Omega @ V_{GS}=-10V, I_D=-0.27A$
- Low Gate Threshold Voltage and Low Input Capacitance
- Fast Switching Speed
- ESD Protected
- For DC-DC converter and Power Management Functions
- For Battery Operated Systems and Solid-State Relays applications
- Surface Mount device


SOT-23
MECHANICAL DATA

- Case: SOT-23
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- 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}	-100	V
Gate-source voltage	V_{GS}	± 20	V
Continuous drain current	I_D	-0.27	A
Continuous source-drain diode current	I_S	-0.42	A
Pulsed drain current (Note 1)	I_{DM}	-1	A
Power dissipation	P_D	0.44	W
Thermal resistance from Junction to ambient	$R_{\theta JA}$	333	$^\circ\text{C/W}$
Junction temperature	T_J	150	$^\circ\text{C}$
Storage temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Drain-Source breakdown voltage(1)	$V_{(BR)DSS}$	-100			V	$V_{GS}=0V, I_D=-250\mu A$
Zero gate voltage drain current(1)	I_{DSS}			-1	μA	$V_{DS}=-100V, V_{GS}=0V$
Gate-body leakage current(1)	I_{GSS}			± 10	μA	$V_{DS}=0V, V_{GS}=\pm 20V$
Gate-threshold voltage (1)	$V_{GS(th)}$	-1.0	-2.3	-3.0	V	$V_{DS}=V_{GS}, I_D=-250\mu A$
Drain-source on-resistance (1)	$R_{DS(ON)}$		2.8	4.2	Ω	$V_{GS}=-10V, I_D=-0.5A$
			3.2	5.0	Ω	$V_{GS}=-4.0V, I_D=-0.1A$
Diode forward voltage (1)	V_{SD}		-0.82	-1.3	V	$I_S=-0.2A, V_{GS}=0V$
Gate resistance(2)	R_g		15.3		Ω	$V_{DS}=0V, V_{GS}=0V, f=1MHz$
Input capacitance(2)	C_{iss}		87		pF	$V_{DS}=-25V, V_{GS}=0V, f=1MHz$
Output capacitance(2)	C_{oss}		5.6		pF	
Reverse transfer capacitance(2)	C_{rss}		2.9		pF	
Turn-on delay time(2)	$t_{d(on)}$		3.3		nS	$V_{DD}=-50V, I_D=-0.5A, V_{GS}=-10V, R_g=10\Omega$
Turn-on rise time(2)	t_r		2.6		nS	
Turn-off delay time(2)	$t_{d(off)}$		8.4		nS	
Turn-off fall time(2)	t_f		4.9		nS	
Total gate charge(2)	Q_g		1.8		nC	
Gate-source charge(2)	Q_{gs}		0.3		nC	$V_{DD}=-80V, V_{GS}=-10V, I_D=-0.5A$
Gate-drain charge(2)	Q_{gd}		0.5		nC	
Reverse Recovery Time(2)	t_{rr}		17.8		nS	$V_R=-100V, I_F=-1.0A, di/dt=100A/\mu S$
Reverse Recovery Charge(2)	Q_{rr}		24.8		nC	

Note: 1. Short duration pulse test used to minimize self-heating effect.

2. Guaranteed by design. Not subject to production testing.

HIGH VOLTAGE MOSFET (P-CHANNEL)

Typical Characteristics

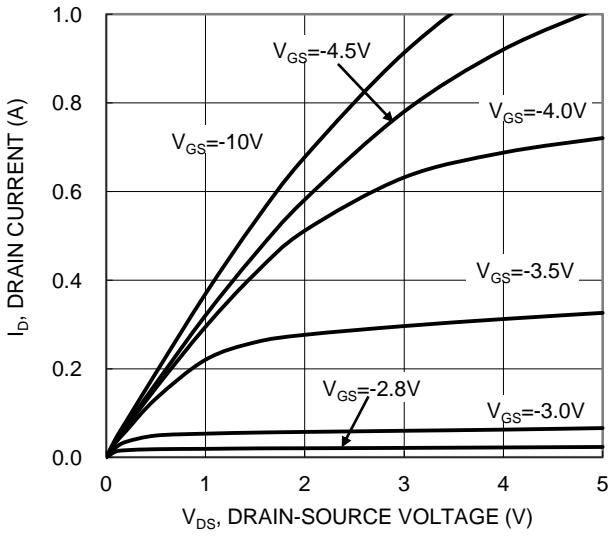


Figure 1. Typical Output Characteristic

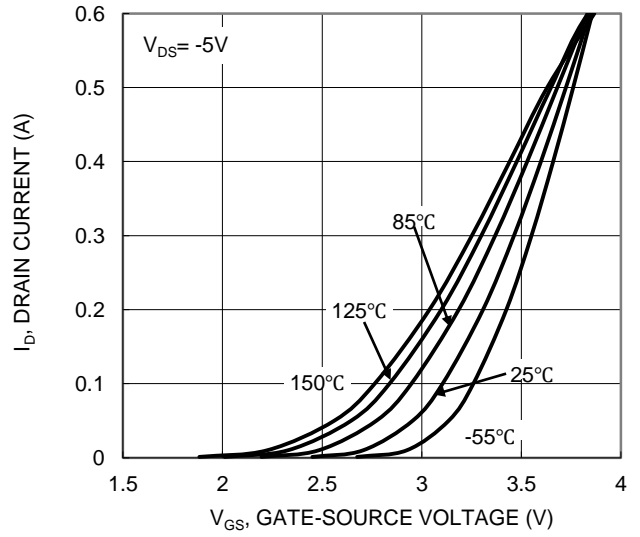


Figure 2. Typical Transfer Characteristic

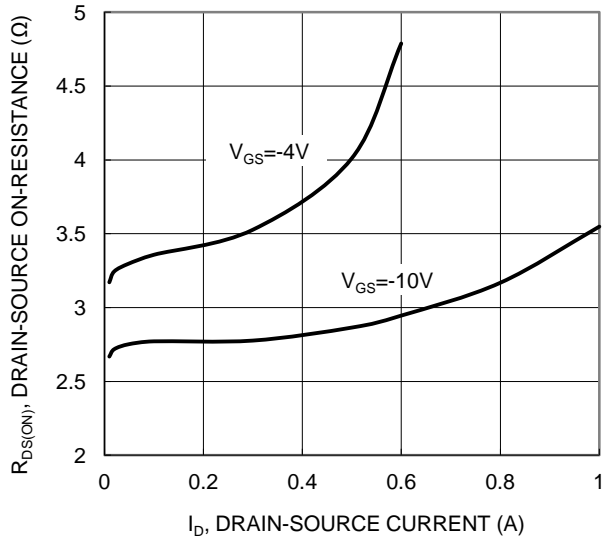


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

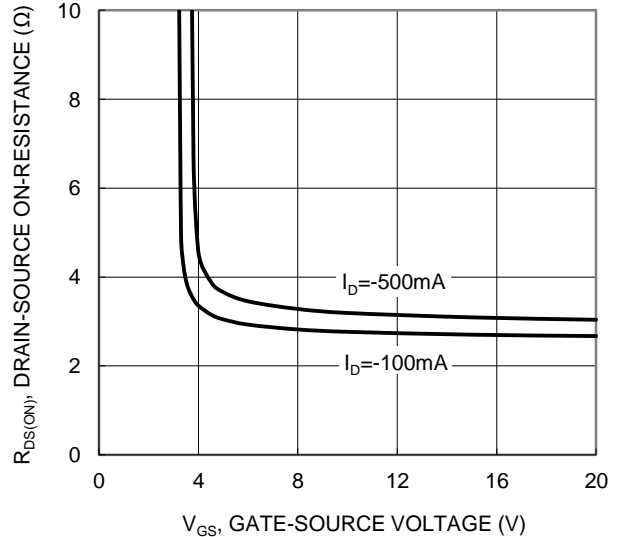


Figure 4. Typical Transfer Characteristic

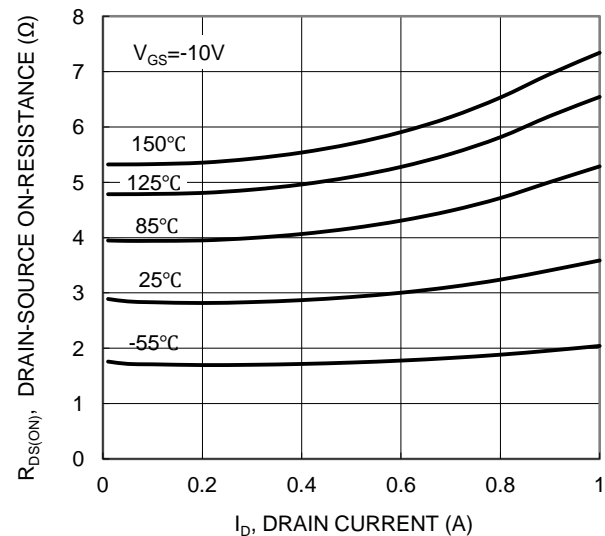


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature

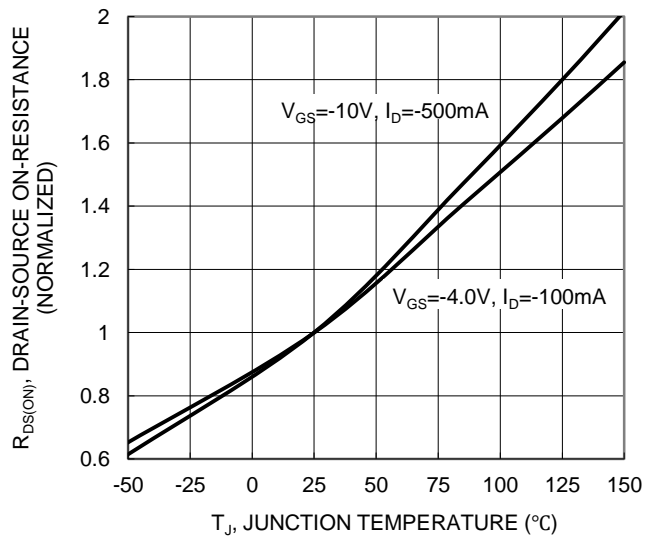


Figure 6. On-Resistance Variation with Junction Temperature

HIGH VOLTAGE MOSFET (P-CHANNEL)

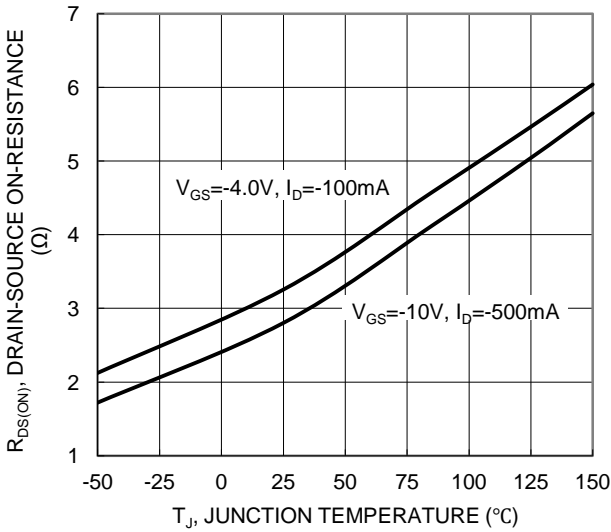


Figure 7. On-Resistance Variation with Junction Temperature

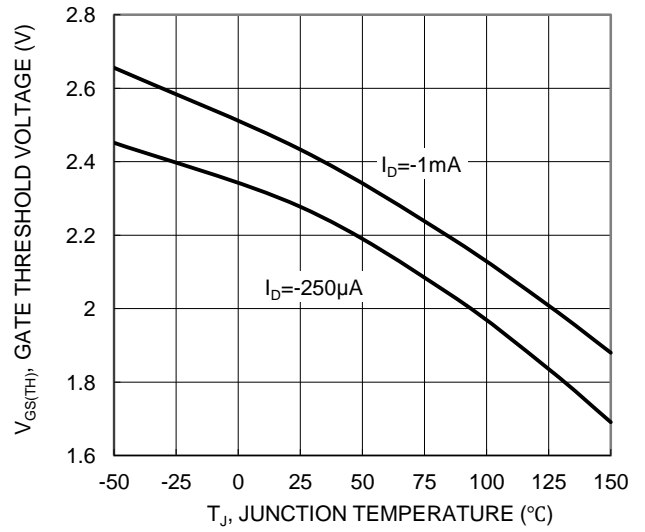


Figure 8. Gate Threshold Variation vs. Junction Temperature

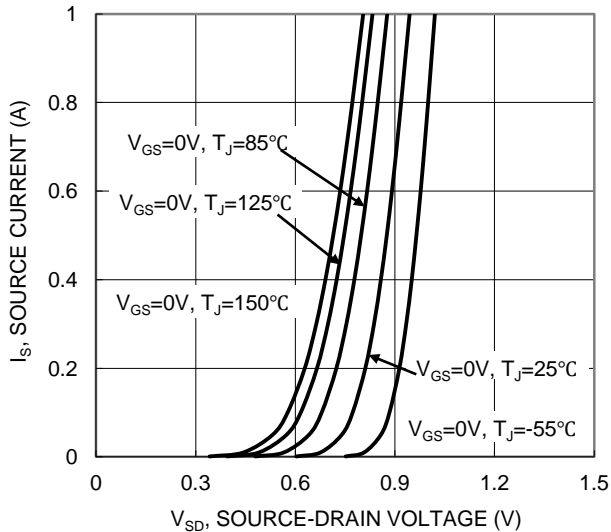


Figure 9. Diode Forward Voltage vs. Current

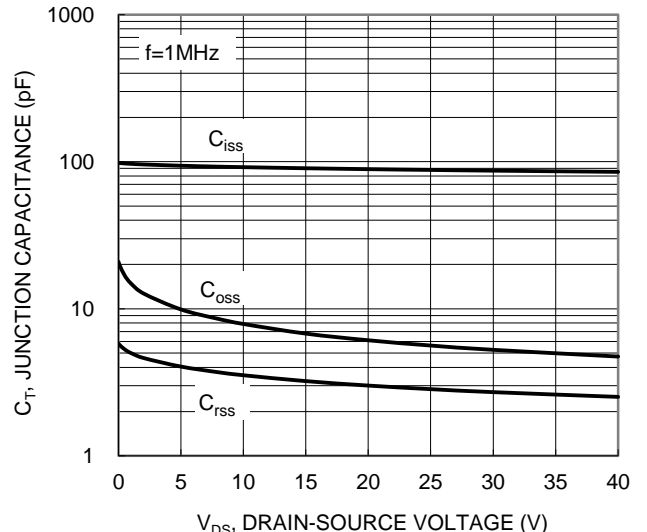


Figure 10. Typical Junction Capacitance

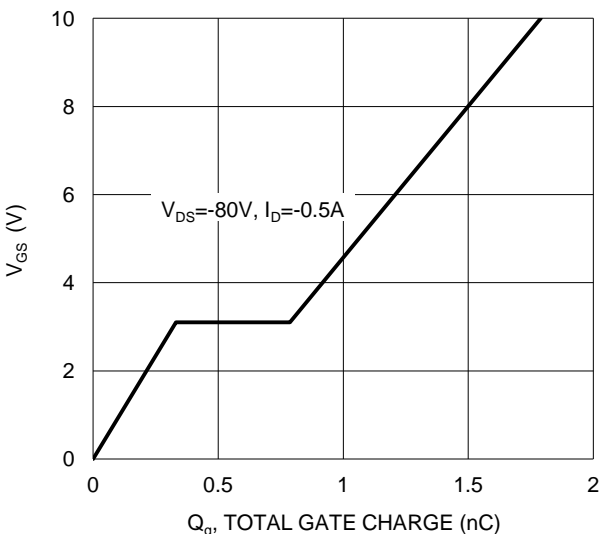


Figure 11. Gate Charge

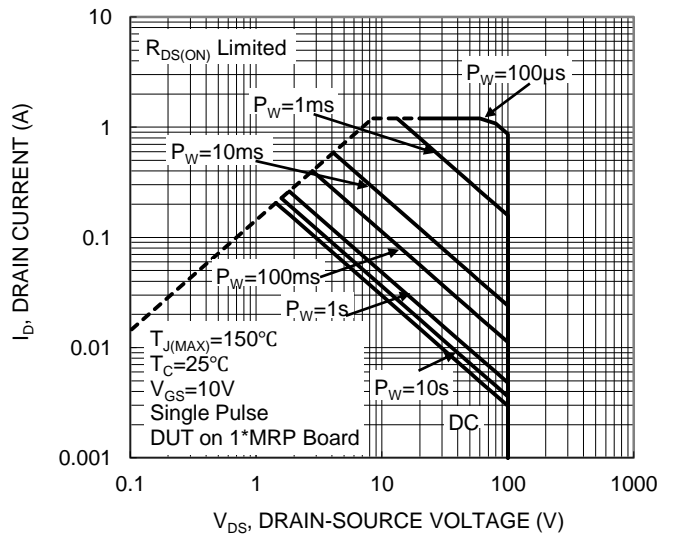


Figure 12. SOA, Safe Operation Area

HIGH VOLTAGE MOSFET (P-CHANNEL)

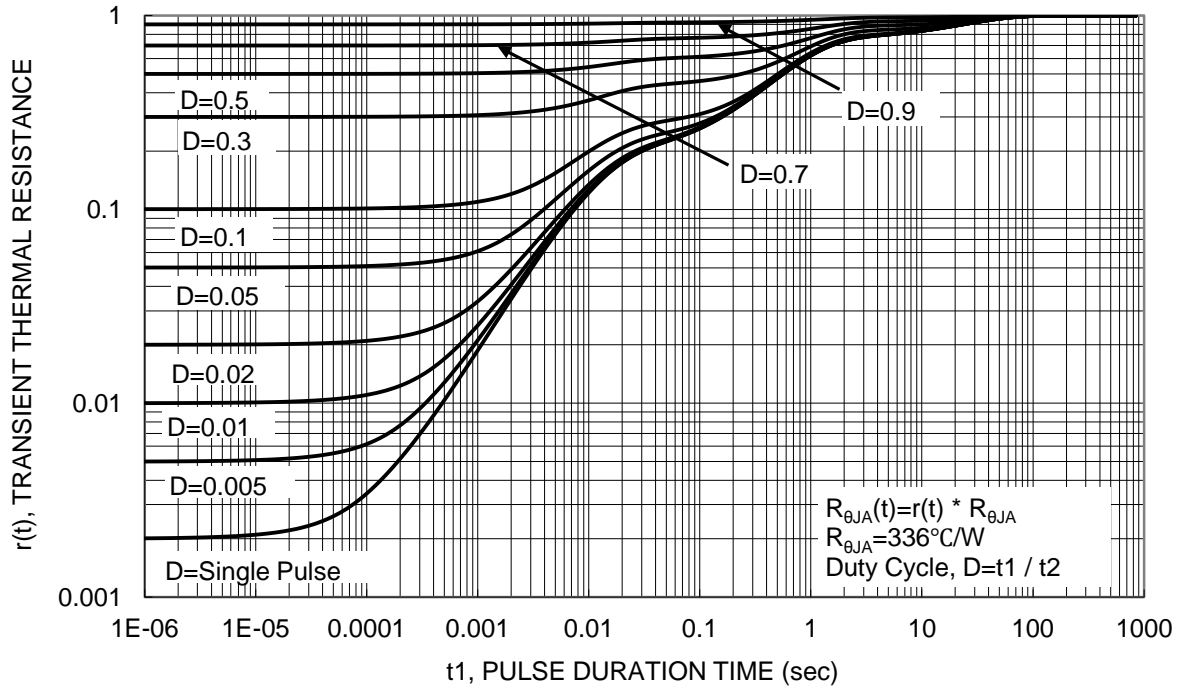
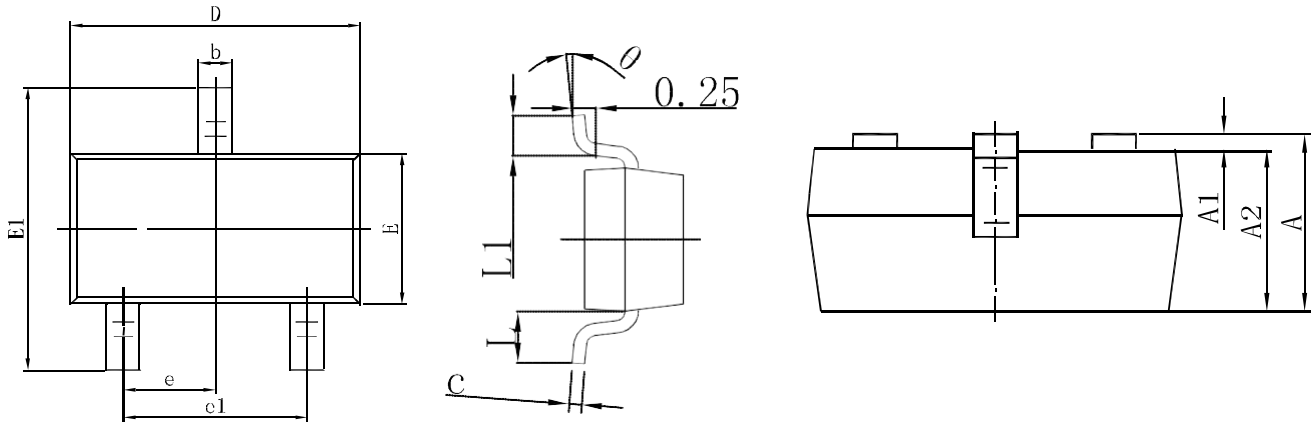
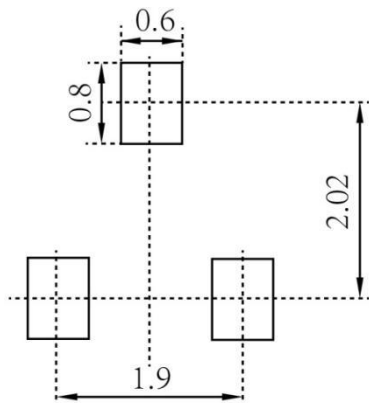


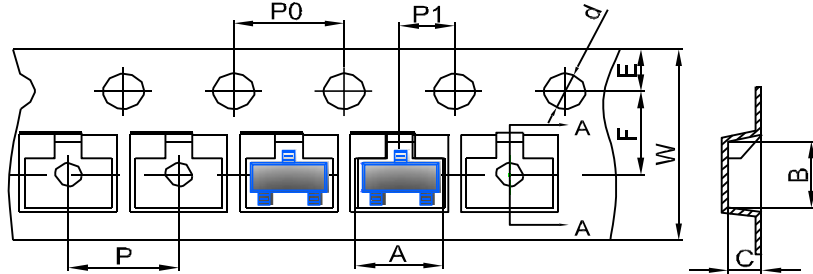
Figure 13. Transient Thermal Resistance

HIGH VOLTAGE MOSFET (P-CHANNEL)
SOT-23 Package Outline Dimensions


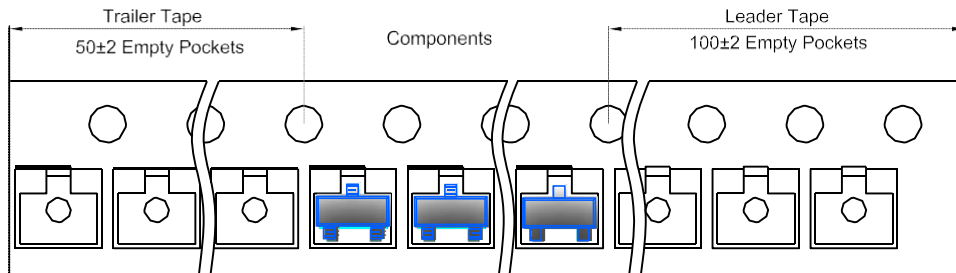
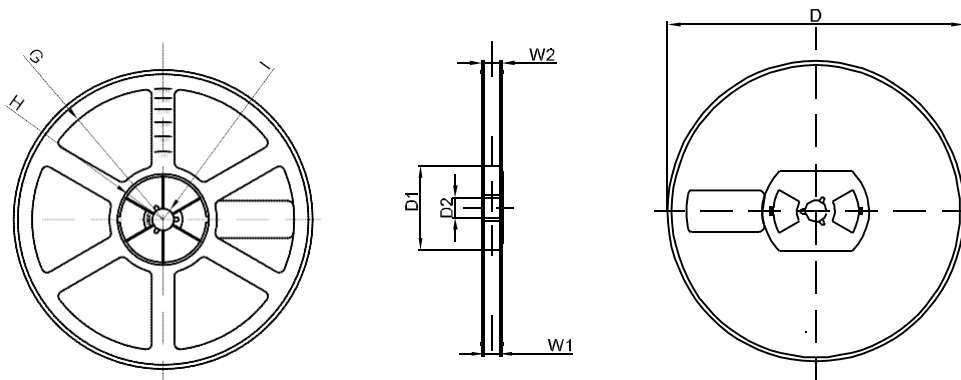
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		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

HIGH VOLTAGE MOSFET (P-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