

Product Summary

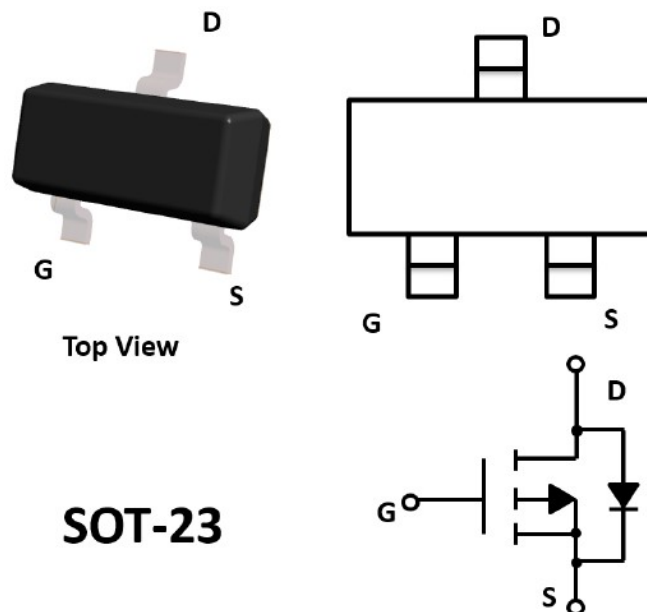
- V_{DS} -40V
- I_D -4A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) Typ 68mohm
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) Typ 88mohm
- 100% ∇V_{DS} Tested

General Description

- Trench Power LV MOSFET technology
- High density cell design for Low $R_{DS(ON)}$
- High Speed switching

Applications

- Battery protection
- Load switch
- Power management



SOT-23

Maximum ratings ($T_a=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	-4	A
Pulsed Diode Current	I_{DM}	-18	
Continuous Source-Drain Current(Diode Conduction)	I_S	-2.1	
Power Dissipation	P_D	2.5	W
Thermal Resistance from Junction to Ambient ($t \leq 5s$)	$R_{\theta JA}$	166	$^{\circ}C/W$
Operating Junction	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}C$



MOSFET ELECTRICAL CHARACTERISTICS

Static Electrical Characteristics (Ta = 25 °C Unless Otherwise Noted)

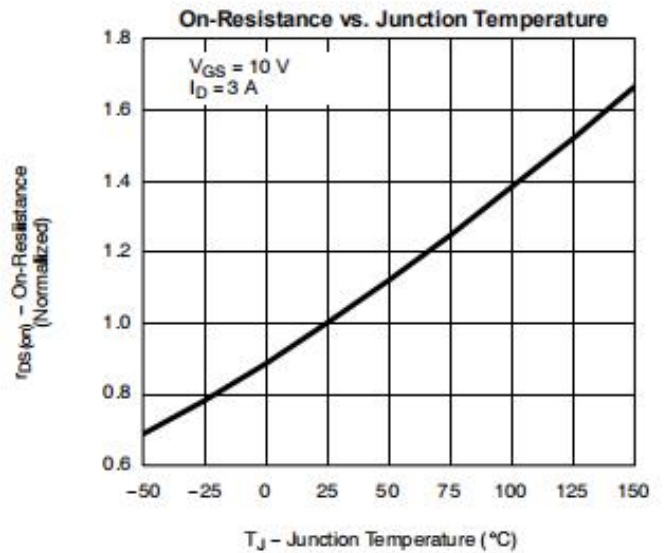
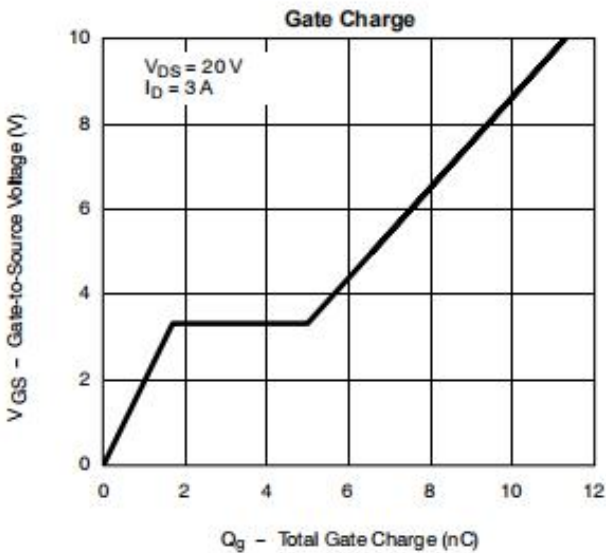
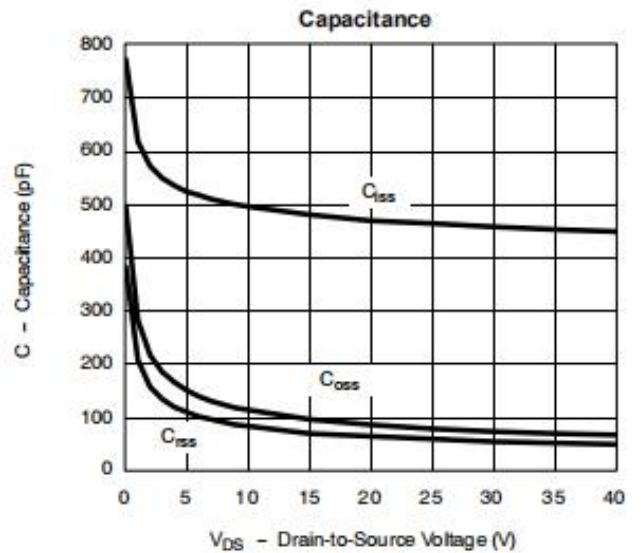
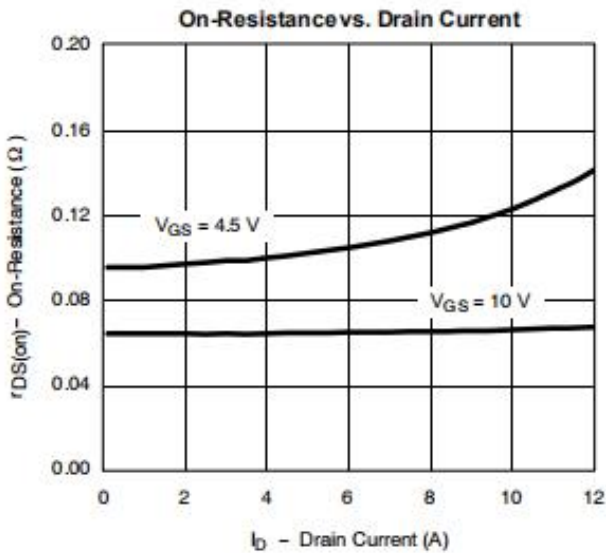
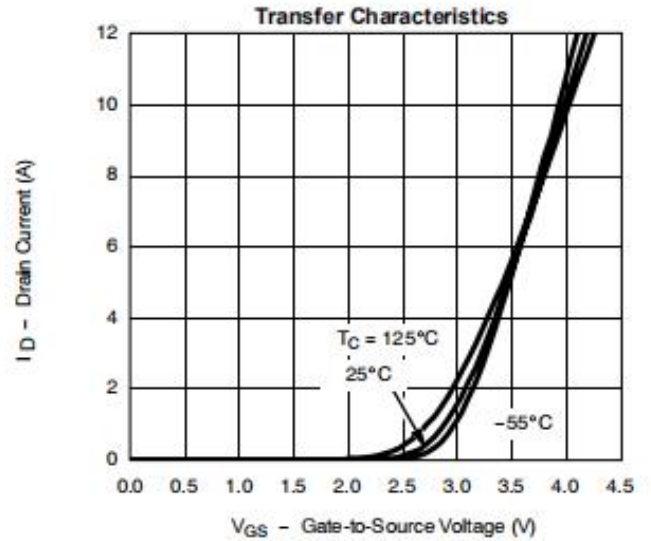
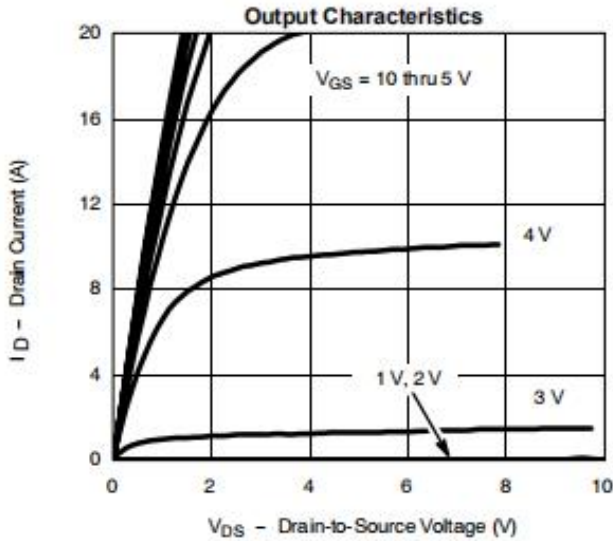
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	V(BR)DSS	VGS = 0V, ID = -250μA	-40			V
Gate-source threshold voltage	VGS(th)	VDS = VGS, ID = -250μA	-1	1.7	-3	V
Gate-source leakage	IGSS	VDS = 0V, VGS = ±20V			±100	nA
Zero gate voltage drain current	IDSS	VDS = -40V, VGS = 0V			-1	μA
Drain-source on-state resistancea	RDS(on)	VGS = -10V, ID = -3A		68	79	mΩ
		VGS = -4.5V, ID = -2.5A		88	99	mΩ
Forward transconductancea	gfs	VDS = -15V, ID = -3.2A		10		S
Diode forward voltage	VSD	IS = -1.25A, VGS = 0V		-0.8	-1.28	V
Dynamic						
Input capacitance	Ciss	VDS = -20V, VGS = 0V, f = 1MHz		595		pF
Output capacitance	Coss			85		pF
Reverse transfer capacitanceb	Crss			65		pF
Total gate charge	Qg	VDS = -20V, VGS = - 10V, ID = -3.1A		13.6	21	nC
Gate-source charge	Qgs			2.5		nC
Gate-drain charge	Qgd			3.3		nC
Gate resistance	Rg	f = 1MHz		4.5		Ω
Switchingb						
Turn-on delay time	td(on)	VDS = -20V RL = 8Ω, ID = -2.5A, VGEN = -4.5 V, Rg = 1Ω		40	60	ns
Rise time	tr			27	41	ns
Turn-off delay time	td(off)			18	27	ns
Fall time	tf			10	20	ns
Drain-source body diode characteristics						
Continuous Source-Drain Diode Current	IS	Tc = 25 °C			-2.1	A
Pulsed Diode forward Curren	ISM				-20	A

Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

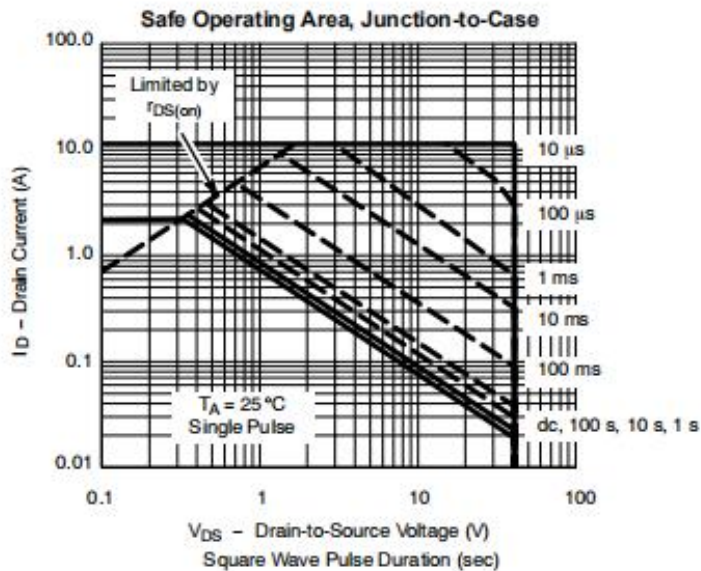
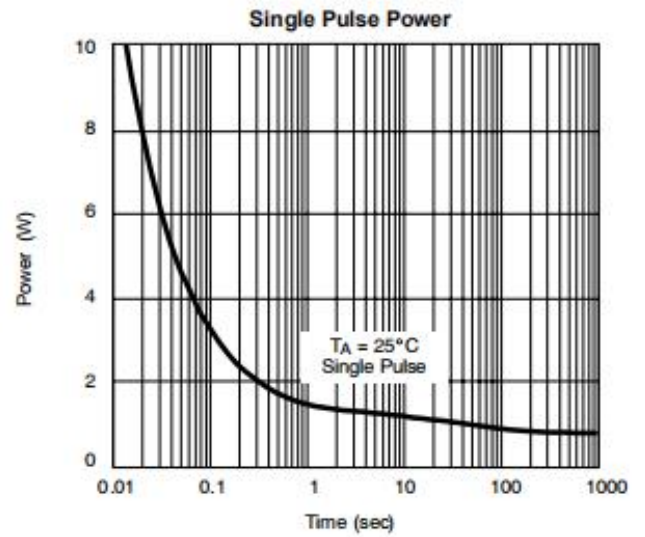
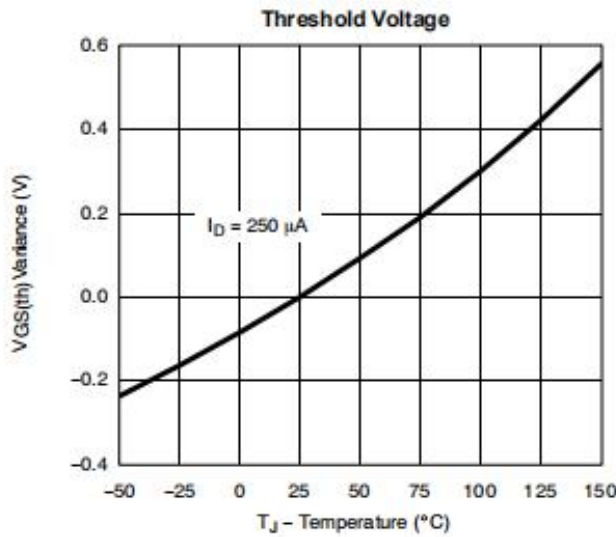
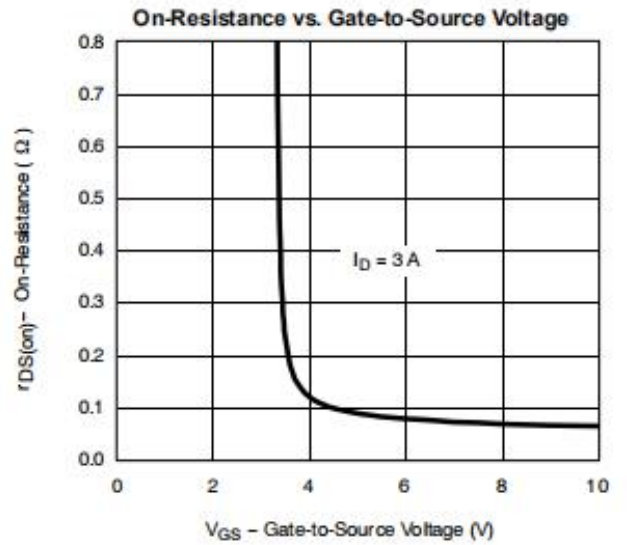
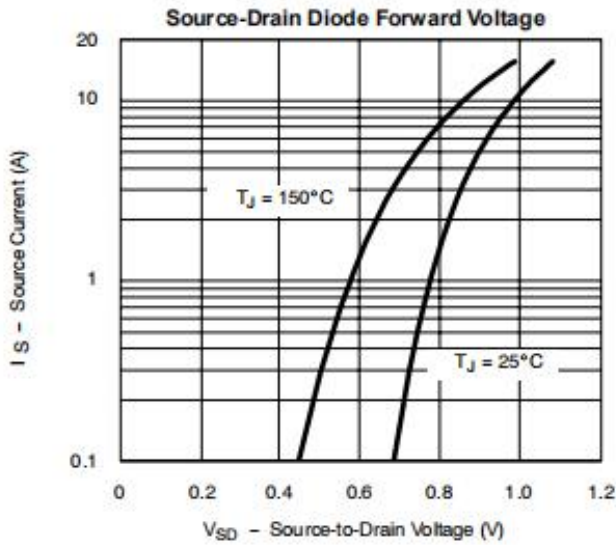


TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



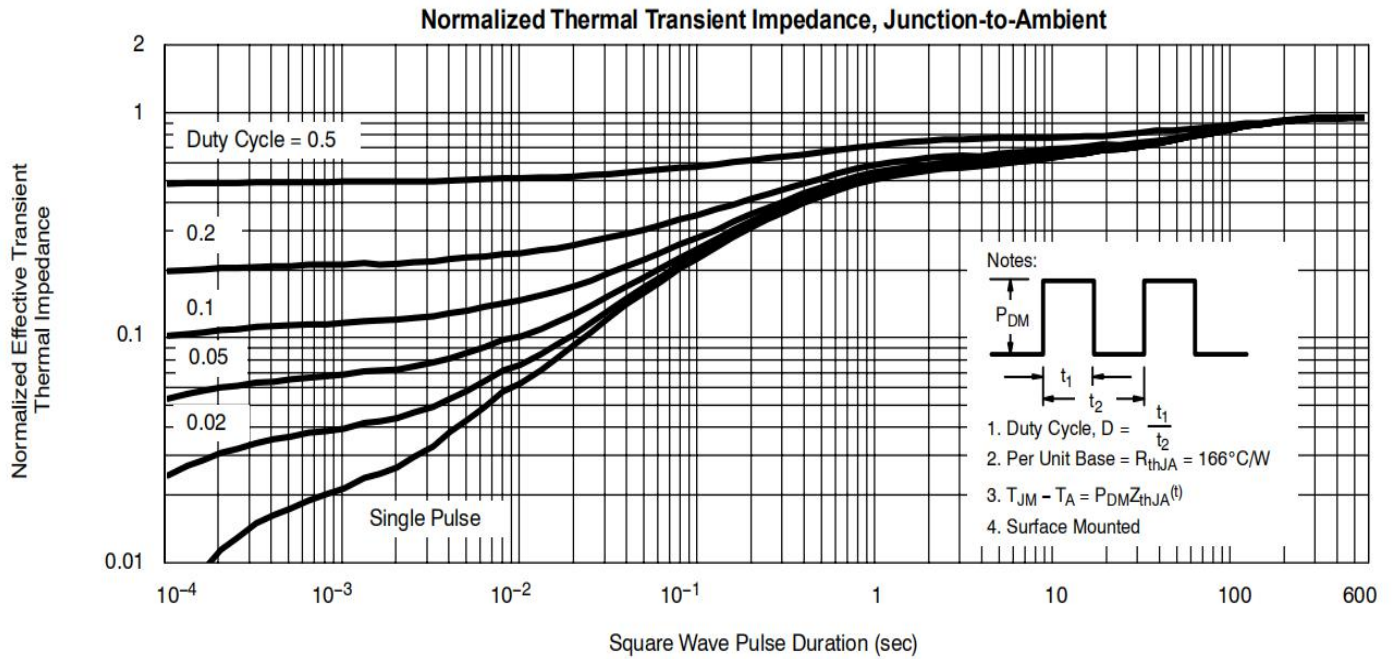


TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

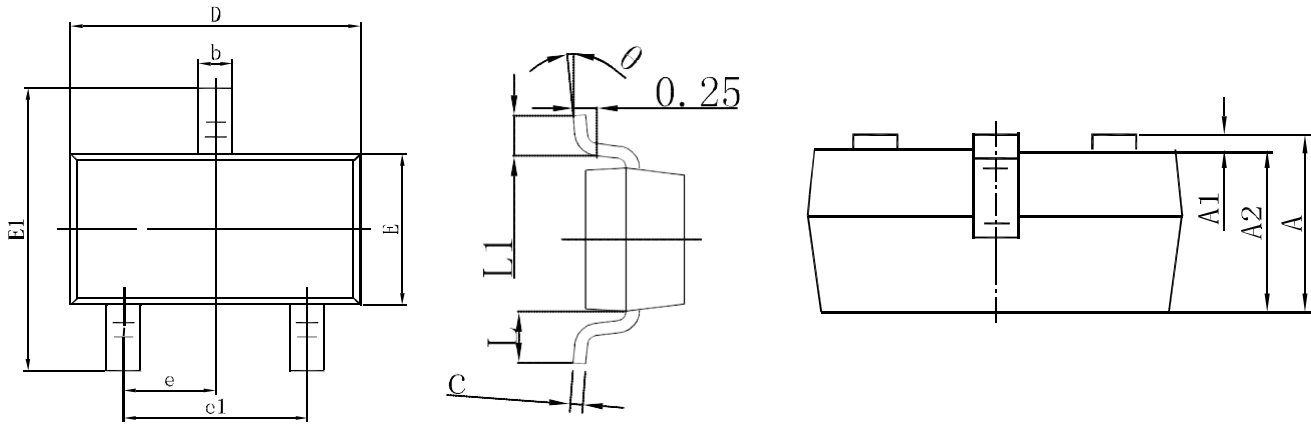




TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

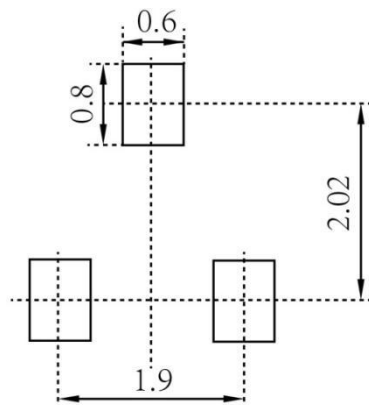


SOT-23 Package Outline Dimensions



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

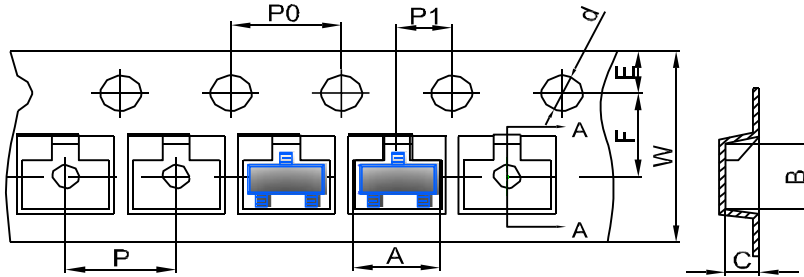


Note:

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

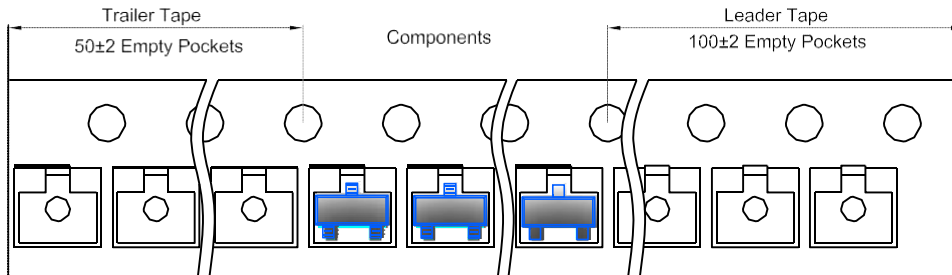
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

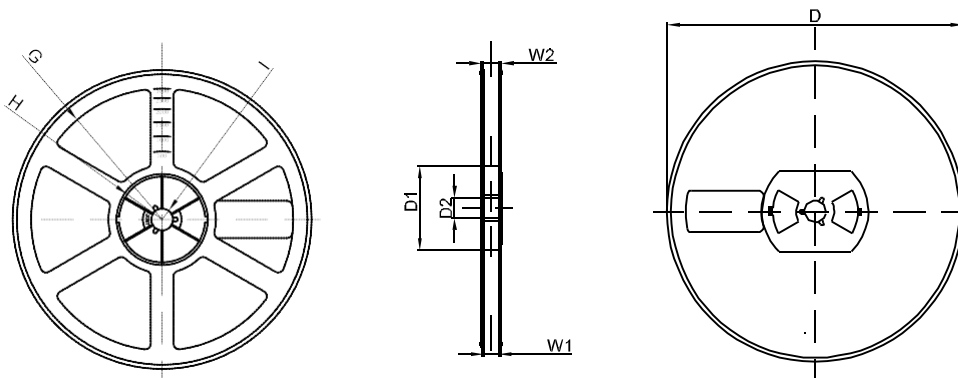


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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