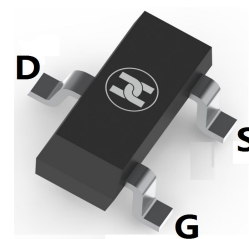
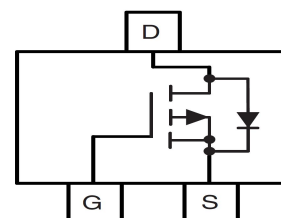


**LOW VOLTAGE MOSFET (P-CHANNEL)**
**FEATURES**

- $V_{DS}=-12V, R_{DS(ON)} \leq 55m\Omega @ V_{GS}=-8V, I_D=-3.5A$
- Low on-resistance
- For DC to DC converter and Load switch 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 ( $T_A = 25^\circ C$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-source voltage	$V_{DS}$	-12	V
Gate-source voltage	$V_{GS}$	$\pm 8$	V
Continuous drain current	$I_D$	-3.5	A
Pulsed drain current	$I_{DM}$	-12	A
Continuous Source-Drain Diode current	$I_S$	-1.6	A
Power dissipation	$P_D$	1.25	W
Thermal resistance from Junction to ambient	$R_{\theta JA}$	100	$^\circ C/W$
Junction temperature	$T_J$	150	$^\circ C$
Storage temperature	$T_{STG}$	-55 ~ +150	$^\circ C$

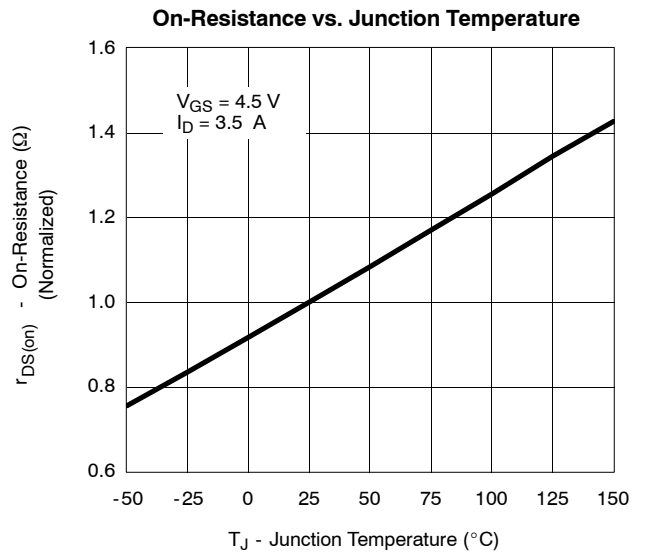
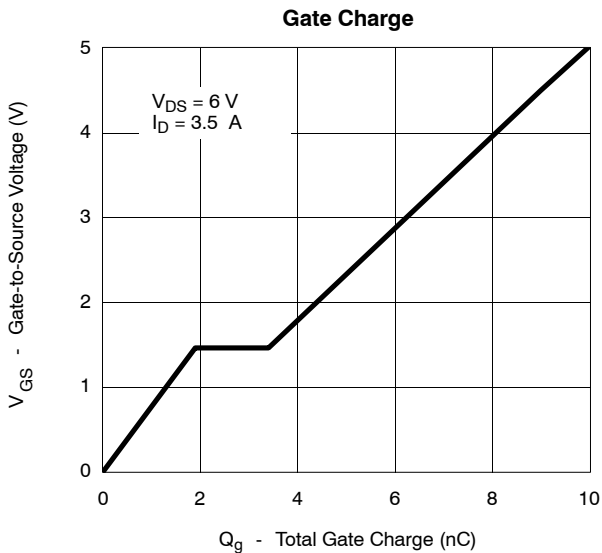
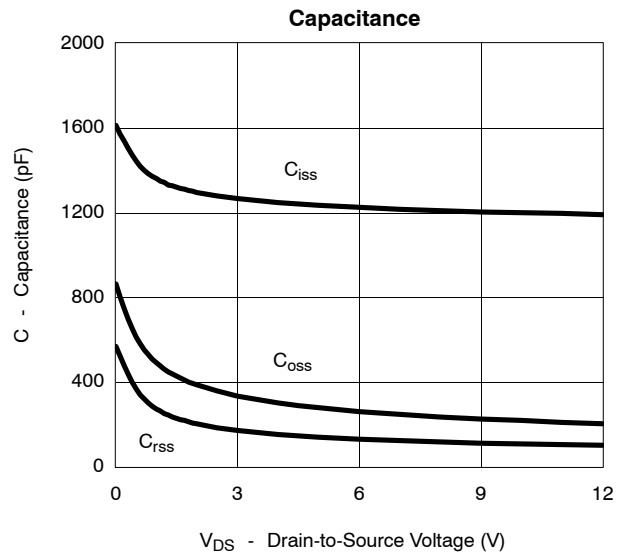
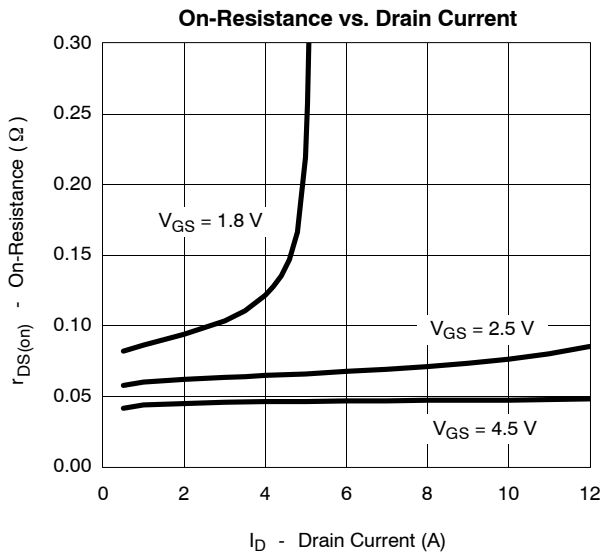
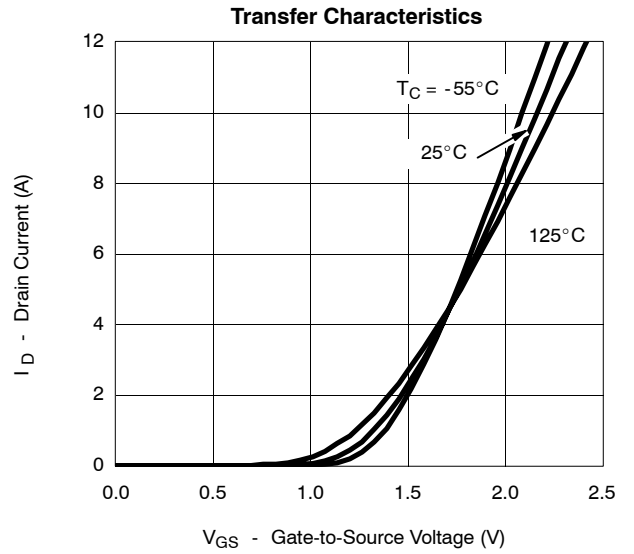
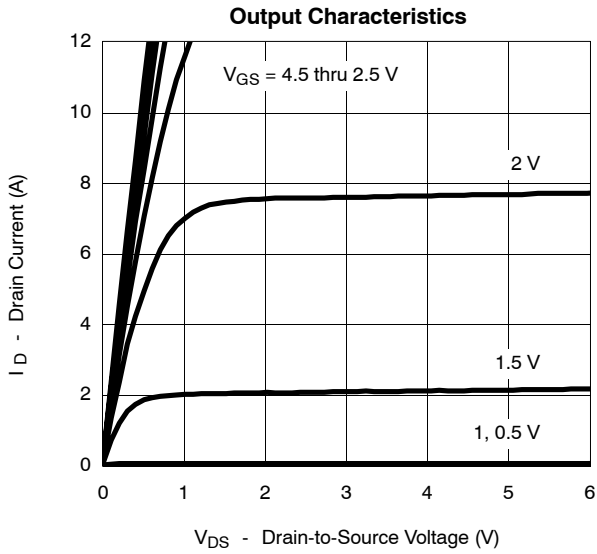
**ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ C$  unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Drain-Source breakdown voltage	$V_{(BR)DSS}$	-12			V	$V_{GS}=0V, I_D=-10\mu A$
Zero gate voltage drain current	$I_{DSS}$			-1	$\mu A$	$V_{DS}=-12V, V_{GS}=0V$
				-10	$\mu A$	$V_{DS}=-12V, V_{GS}=0V, T_J=55^\circ C$
Gate-body leakage current	$I_{GSS}$			$\pm 100$	nA	$V_{DS}=0V, V_{GS}=\pm 8V$
Gate-threshold voltage	$V_{GS(th)}$	-0.45			V	$V_{DS}=V_{GS}, I_D=-250\mu A$
On-state Drain Current	$I_{D(on)}$	-6				$V_{DS} \leq -5V, V_{GS}=-4.5V$
		-3				$V_{DS} \leq -5V, V_{GS}=-2.5V$
Drain-source on-resistance (note 1)	$R_{DS(ON)}$		45	55	m $\Omega$	$V_{GS}=-4.5V, I_D=-3.5A$
			63	75	m $\Omega$	$V_{GS}=-2.5V, I_D=-3A$
			93	118	m $\Omega$	$V_{GS}=-1.8V, I_D=-2A$
Forward transconductance (note 1)	$g_{FS}$		7		S	$V_{DS}=-5V, I_D=-3.5A$
Input capacitance(note 1)	$C_{iss}$		1225		pF	$V_{DS}=-6V, V_{GS}=0V, f=1MHz$
Output capacitance(note 1)	$C_{oss}$		260		pF	
Reverse transfer capacitance(note 1)	$C_{rss}$		130		pF	
Turn-on delay time(note 1)	$t_{d(on)}$		13	20	nS	$V_{DD}=-6V, I_D=-1A,$ $V_{GEN}=-4.5V, R_g=6\Omega, R_L=6\Omega$
Turn-on rise time(note 1)	$t_r$		15	25	nS	
Turn-off delay time(note 1)	$t_{d(off)}$		50	70	nS	
Turn-off fall time(note 1)	$t_f$		19	35	nS	
Total gate charge(note 1)	$Q_g$		9	15	nC	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-3.5A$
Gate-source charge(note 1)	$Q_{gs}$		1.9		nC	
Gate-drain charge(note 1)	$Q_{gd}$		1.5		nC	
Diode forward voltage (note 1)	$V_{SD}$			-1.2	V	$I_S=-1.6A, V_{GS}=0V$

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

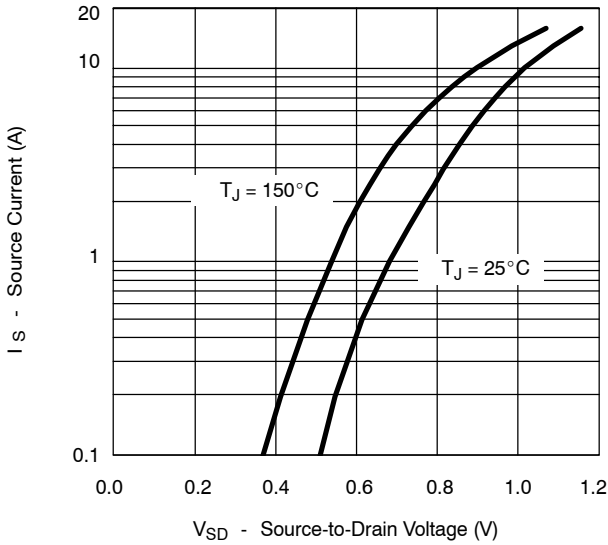
**LOW VOLTAGE MOSFET (P-CHANNEL)**

**Typical Characteristics**

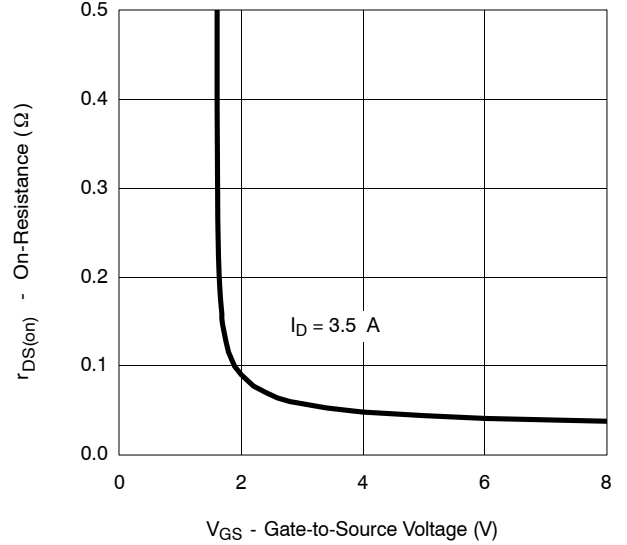


**LOW VOLTAGE MOSFET (P-CHANNEL)**

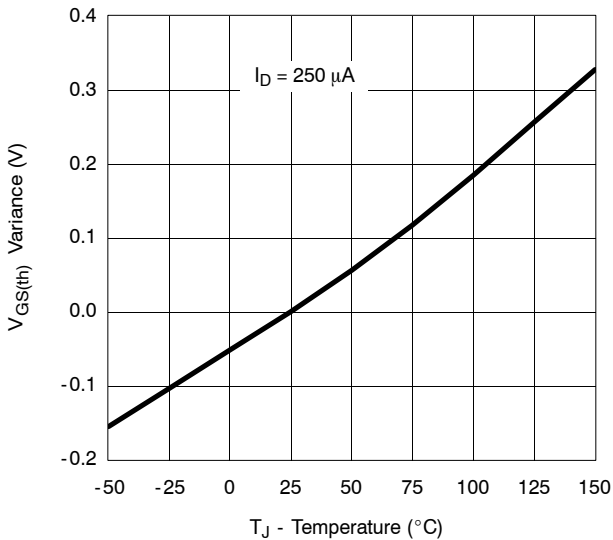
**Source-Drain Diode Forward Voltage**



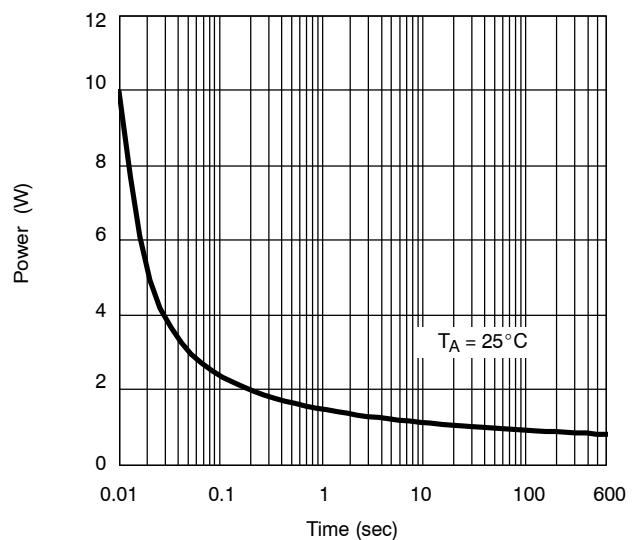
**On-Resistance vs. Gate-to-Source Voltage**



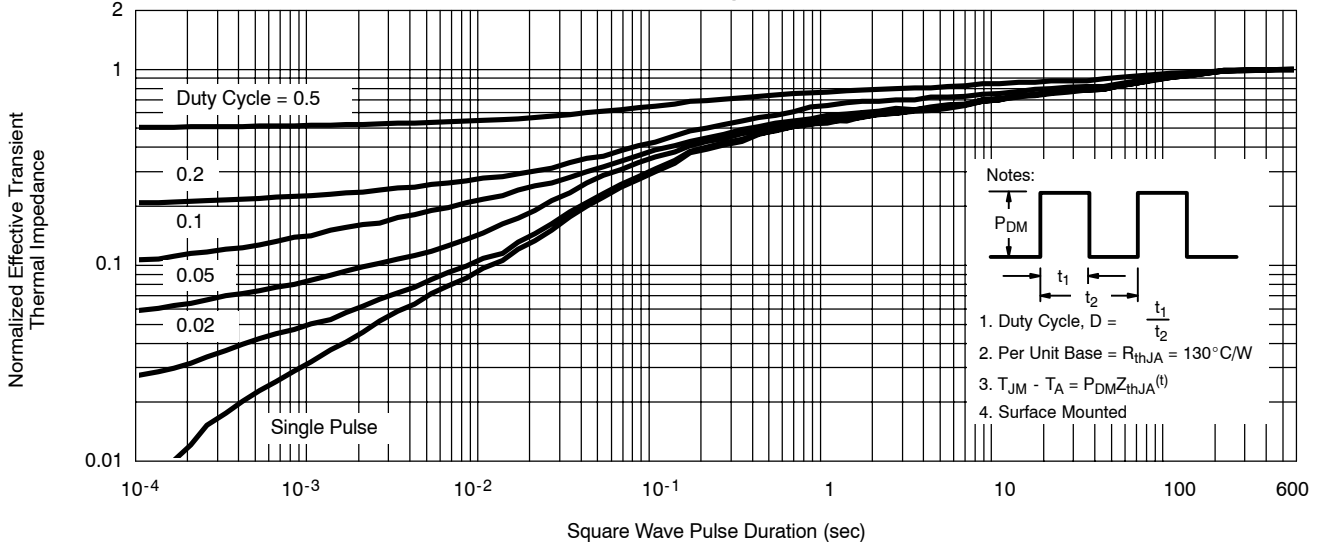
**Threshold Voltage**

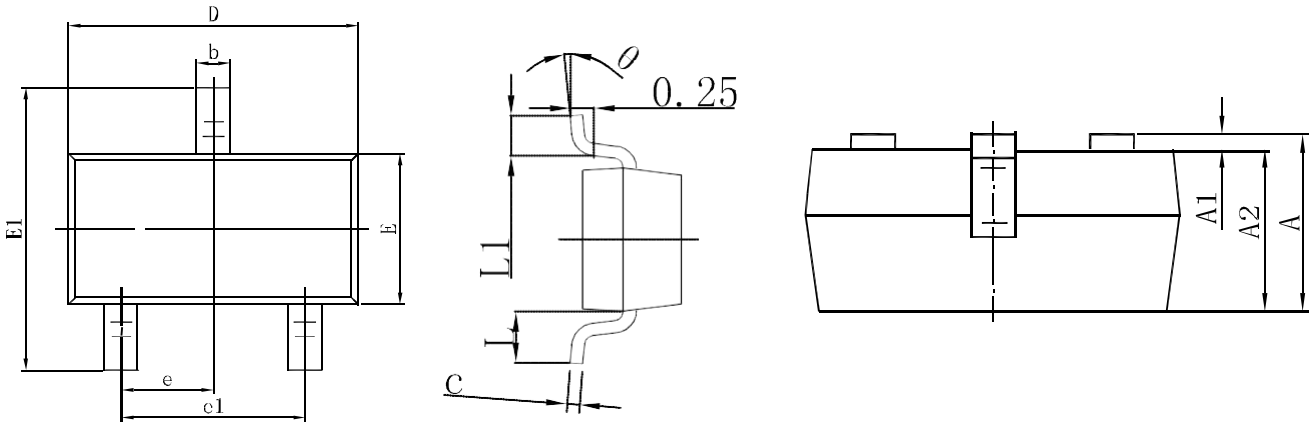


**Single Pulse Power**

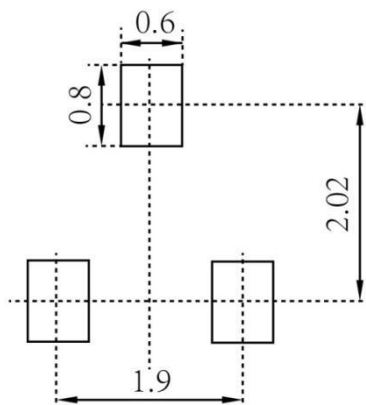


**Normalized Thermal Transient Impedance, Junction-to-Ambient**



**LOW 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°

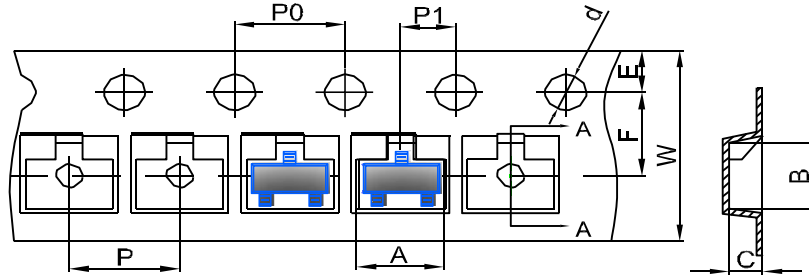
**SOT-23 Suggested Pad Layout**

**Note:**

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

LOW VOLTAGE MOSFET (P-CHANNEL)

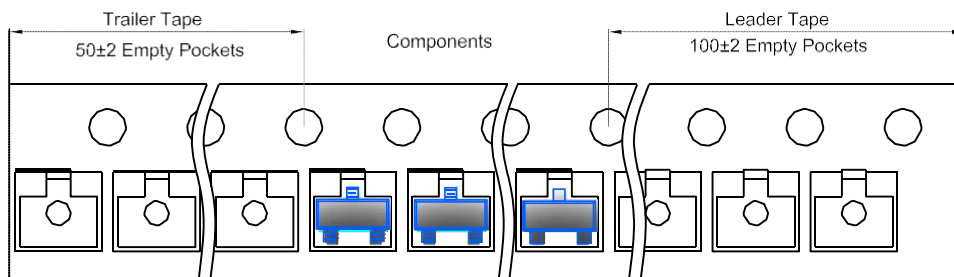
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

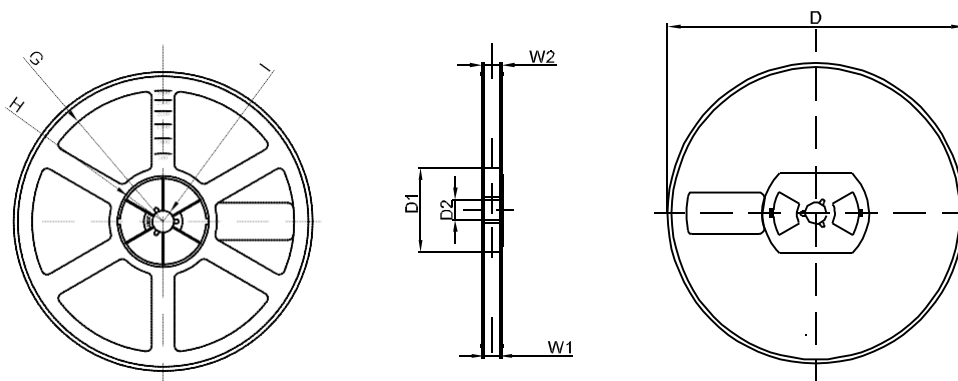


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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