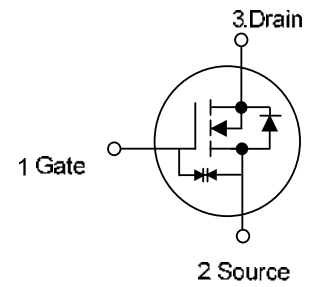


SYMBOL



■ PRODUCT CHARACTERISTICS

VDSS	60V
$R_{DS(on)max}(@V_{GS} = 4.5\text{ V})$	2.4Ω
$R_{DS(on)max}(@V_{GS} = 10\text{ V})$	2.2Ω
ID	0.38A

■ FEATURES

- * High Density Cell Design for Low $R_{DS(ON)}$.
- * Voltage Controlled Small Signal Switch
- * Rugged and Reliable
- * High Saturation Current Capability
- * ESD protected:2000V



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, unless otherwise specified.)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	60	V
Drain-Gate Voltage ($R_{GS} \leq 1\text{M}\Omega$)		V_{DGR}	60	V
Gate Source Voltage	Continuous	V_{GSS}	± 20	V
	Non Repetitive($t_P < 50\mu\text{s}$)		± 40	
Drain Current	Continuous	I_D	380	mA
	Pulsed		950	
Power Dissipation		P_D	200	mW
Derated Above 25°C			1.6	$\text{mW}/^{\circ}\text{C}$
Junction Temperature		T_J	+ 150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	625	$^{\circ}\text{C}/\text{W}$
Junction to Case	θ_{JC}	215	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS (T =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=10\mu A$	60			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate-Source Leakage Current	I_{GSSF}	$V_{GS}=20V, V_{DS}=0V$			10	μA
	I_{GSSR}	$V_{GS}=-20V, V_{DS}=0V$			-10	μA
ON CHARACTERISTICS (Note)						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.3		2.45	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=300mA$			2.2	Ω
		$V_{GS}=4.5V, I_D=200mA$			2.4	Ω
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$			50	pF
Output Capacitance	C_{OSS}				25	pF
Reverse Transfer Capacitance	C_{RSS}				5	pF
Turn-On Time	t_{ON}	$V_{DD}=30V, R_L=150\Omega, I_D=200mA,$			20	nS
Turn-Off Time	t_{OFF}	$V_{GS}=10V, R_G=25\Omega$			20	nS
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Maximum Continuous Drain-Source Diode Forward Current	I_S				300	mA
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				0.95	A
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=300mA$ (Note)		0.88	1.5	V

Note: Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2.0\%$

■ TEST CIRCUIT AND WAVEFORM

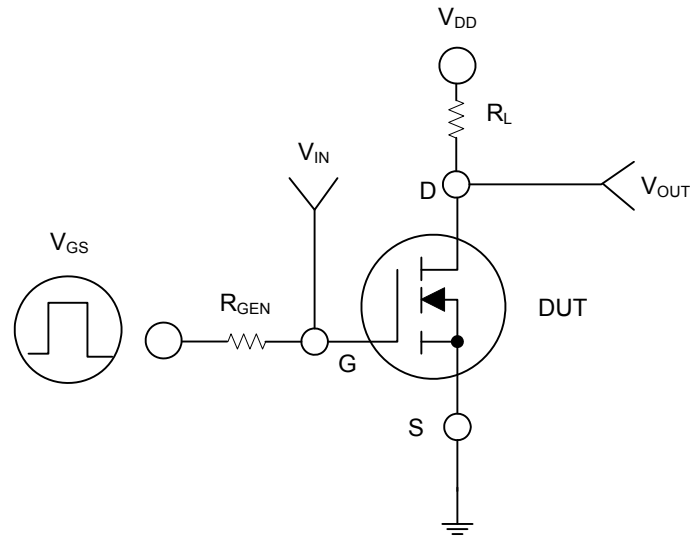


Fig. 1

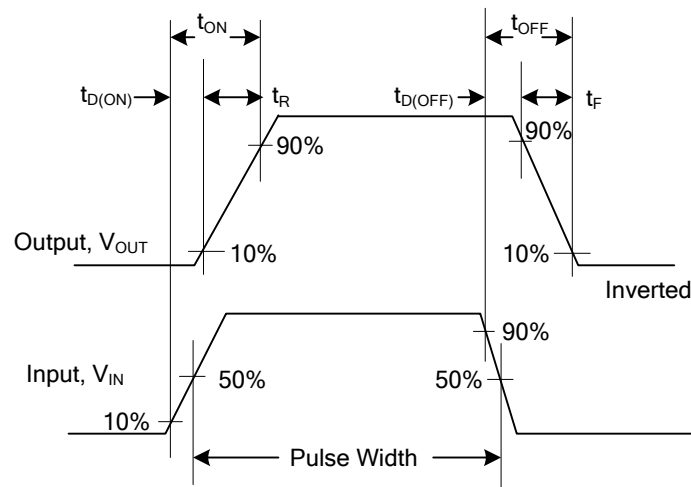
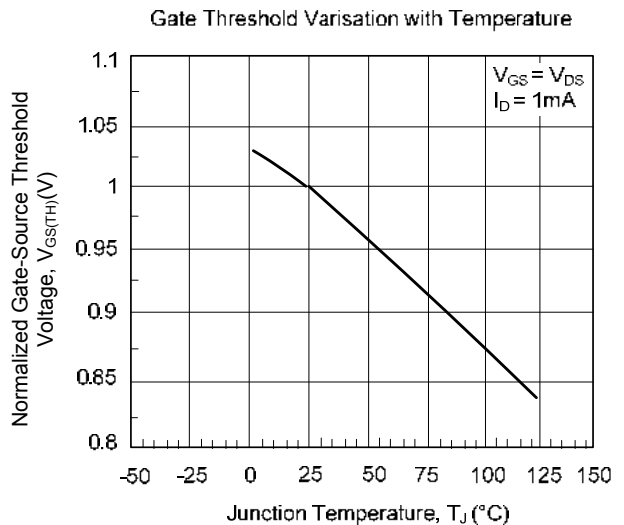
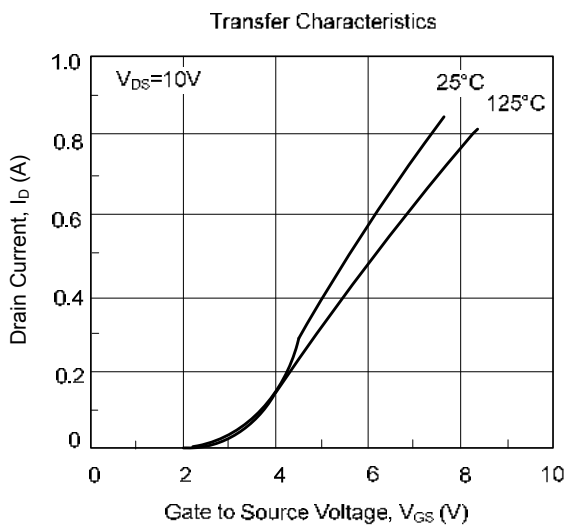
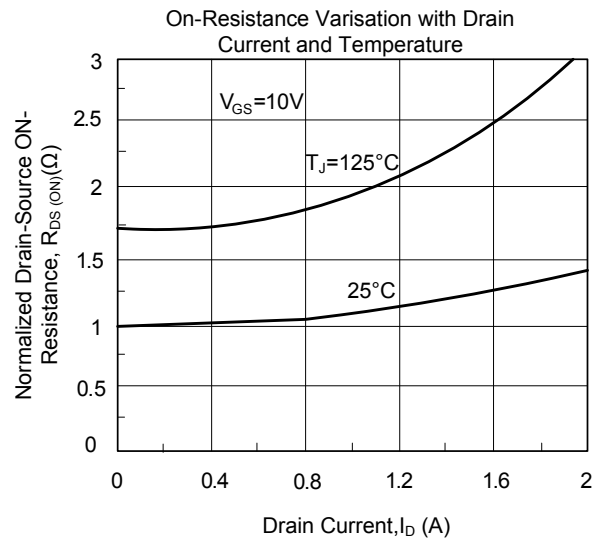
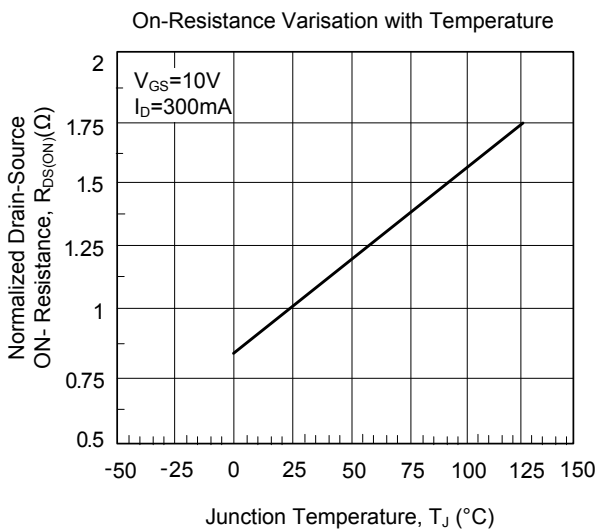
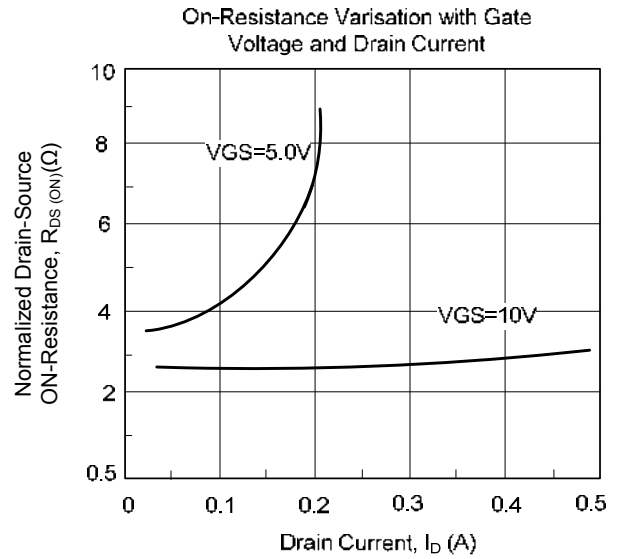
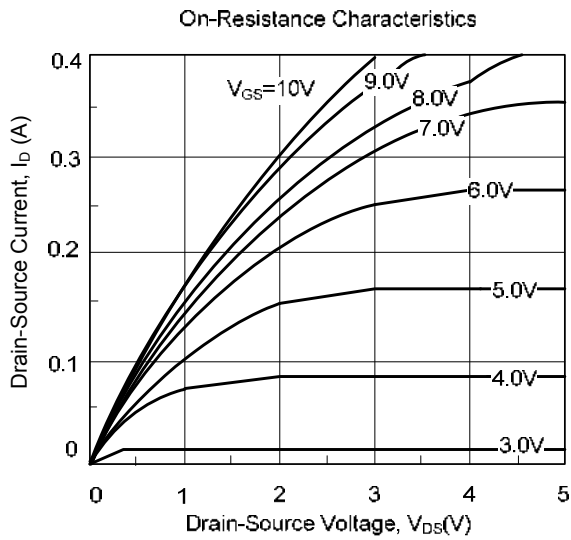


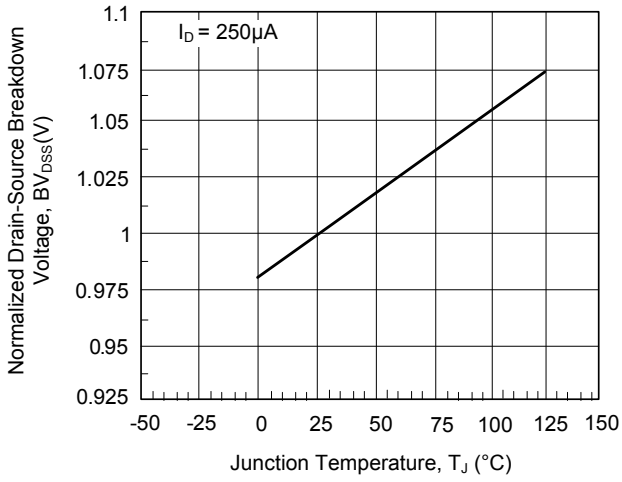
Fig. 2 Switching Waveforms

■ TYPICAL CHARACTERISTICS

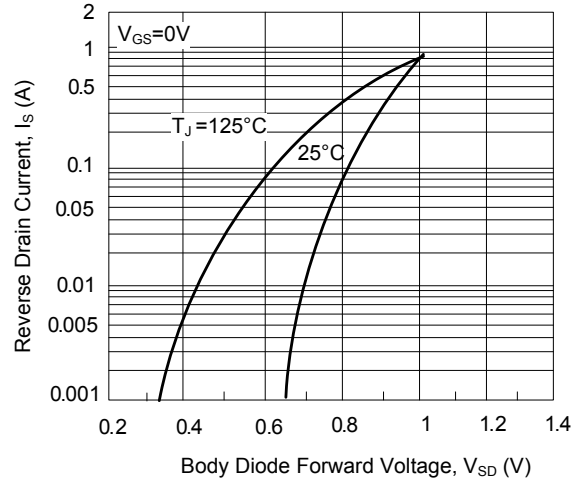


■ TYPICAL CHARACTERISTICS(Cont.)

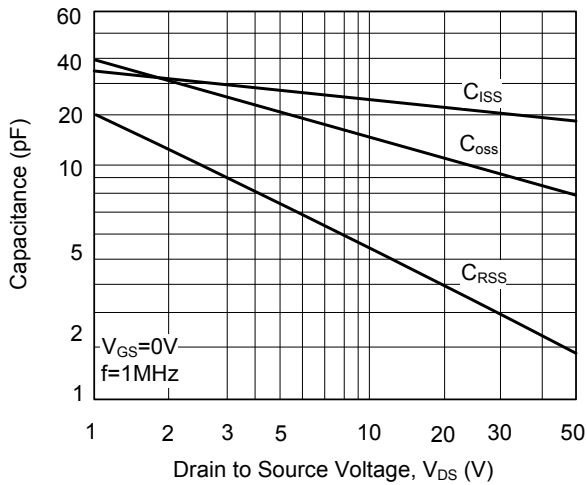
Breakdown Voltage Variation with Temperature



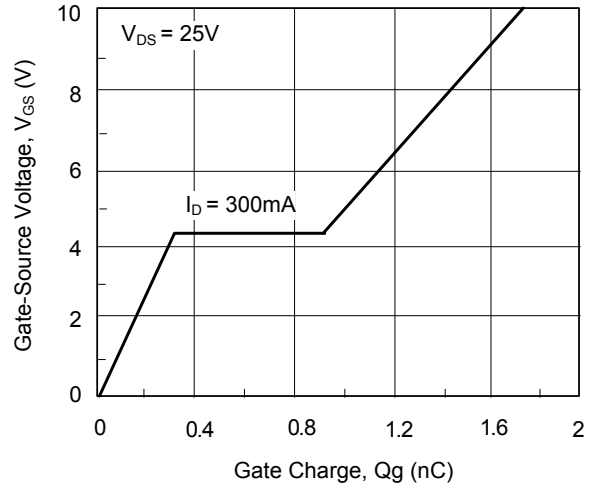
Body Diode Forward Voltage Variation with Temperature



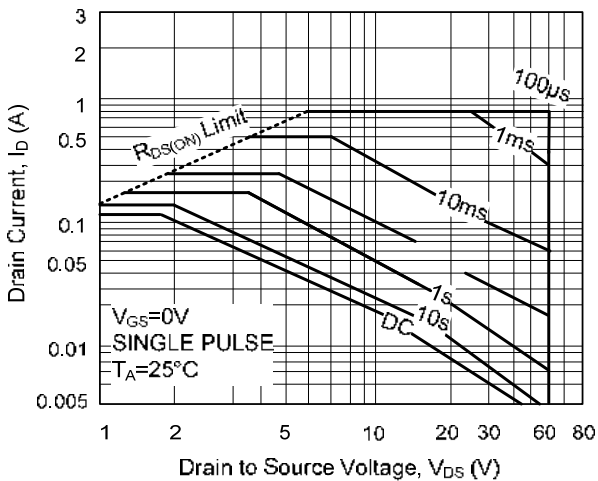
Capacitance Characteristics



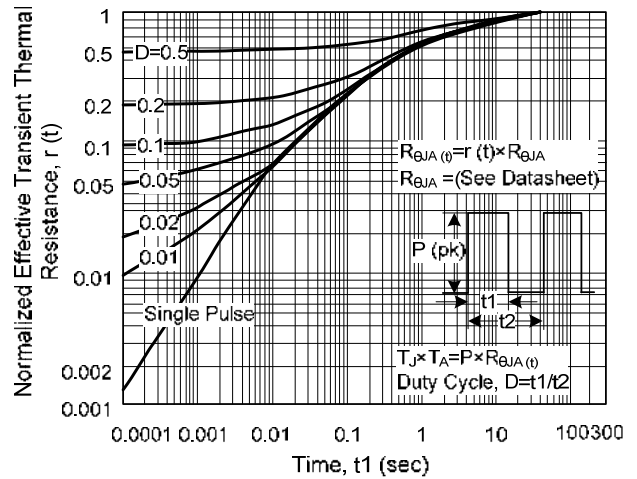
Gate Charge Characteristics



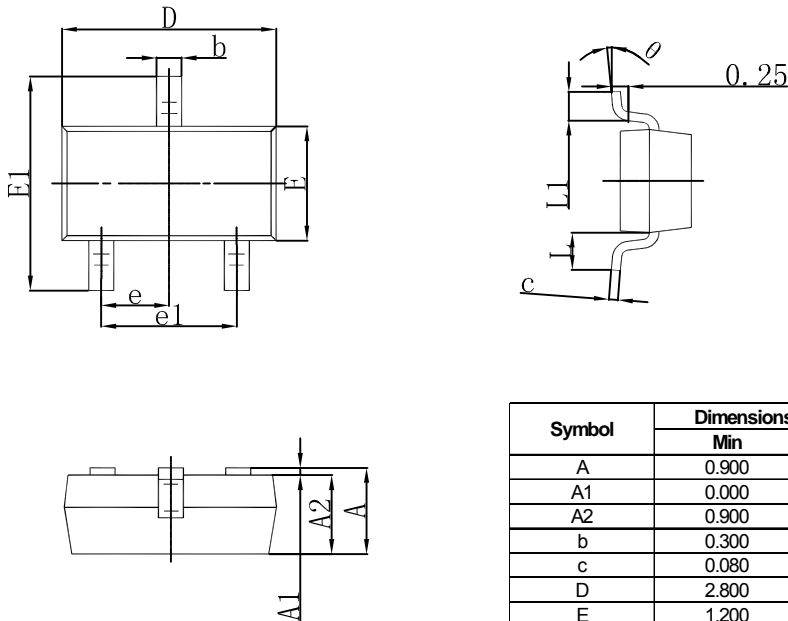
Maximum Safe Operating Area



Transient Thermal Response Curve

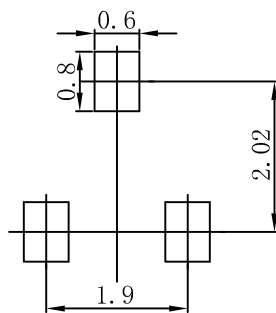


SOT-23 PACKAGE OUTLINE DIMENSIONS



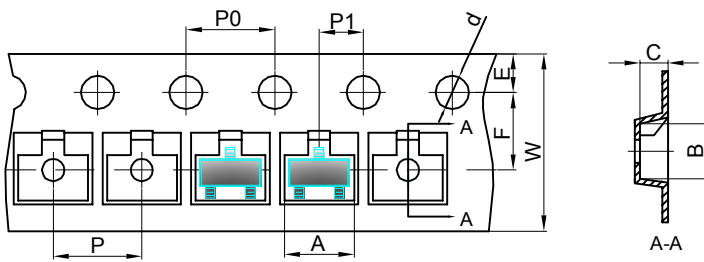
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 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



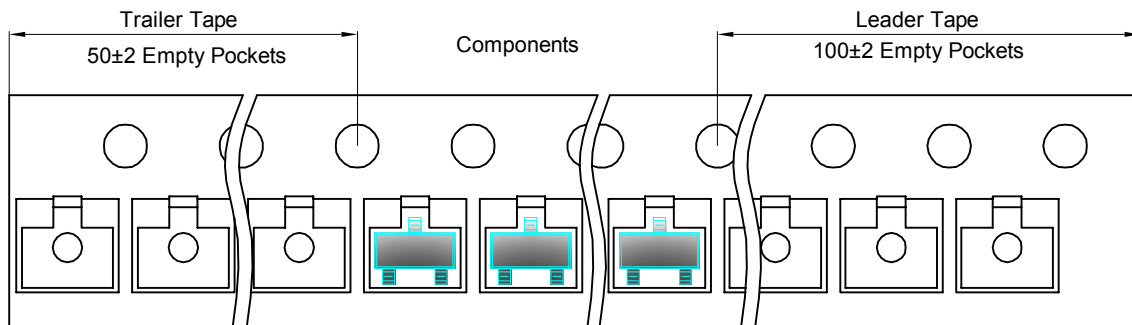
- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: ± 0.05 mm.
 3. The pad layout is for reference purposes only.

SOT-23 EMBOSSED CARRIER TAPE

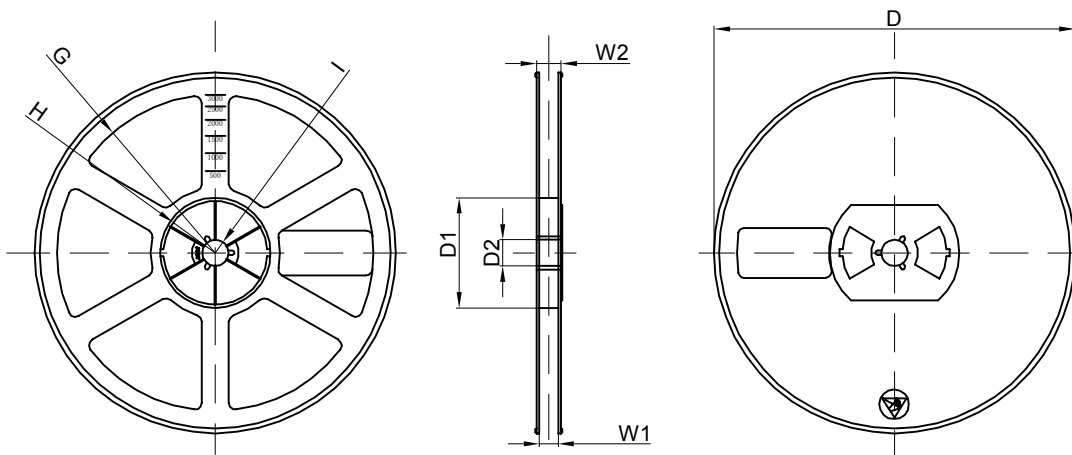


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

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	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	192×192×193	180,000 pcs	404×404×214	