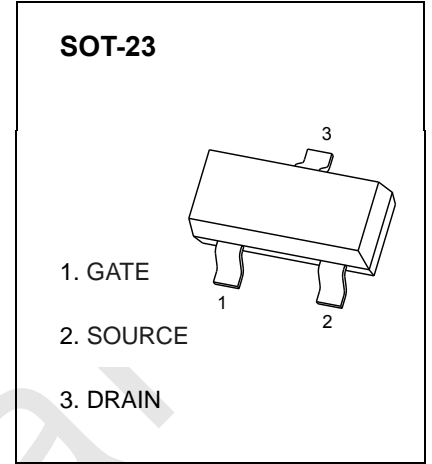




SOT-23 Plastic-Encapsulate MOSFETS

CJ2204 P-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	40mΩ@-4.5V	-2.8A
	43mΩ@-2.5V	
	80mΩ@-1.8V	



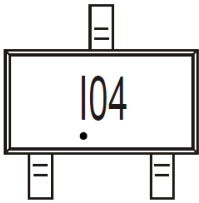
FEATURE

- TrenchFET Power MOSFET

APPLICATION

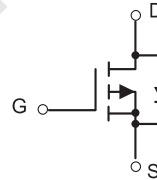
- PA Switch
- Load Switch

MARKING



104= Device code
Solid dot = Green molding compound device
if none, the normal device

Equivalent Circuit



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	-2.8	A
Pulsed Drain Current	$I_{DM}^{①}$	-11.2	A
Power Dissipation	$P_D^{③}$	625	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}^{③}$	200	$^{\circ}C/W$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^{\circ}C$

MOSFET ELECTRICAL CHARACTERISTICS

$T_A=25^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit	
Off characteristics							
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20	-	-	V	
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -16V, V_{GS} = 0V$	$T_J = 25^{\circ}\text{C}$	-	-	-1.0	μA
			$T_J = 125^{\circ}\text{C}$	-	-	-100	
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 12V$	-	-	± 100	nA	
On characteristics ^②							
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.4	-0.8	-1.3	V	
Static drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -3A$	-	29	40	m Ω	
		$V_{GS} = -2.5V, I_D = -3A$	-	37	43	m Ω	
		$V_{GS} = -1.8V, I_D = -2A$	-	58	80	m Ω	
Forward transconductance	g_{FS}	$V_{DS} = -5V, I_D = -3.3A$	3	7.5	-	S	
Dynamic characteristics							
Input capacitance	C_{iss}	$V_{DS} = -6V, V_{GS} = 0V, f = 1\text{MHz}$	-	660	-	μF	
Output capacitance	C_{oss}		-	110	-		
Reverse transfer capacitance	C_{rss}		-	62	-		
Gate resistance	R_g	$f = 1\text{MHz}$	-	31	-	Ω	
Switching characteristics							
Total gate charge	Q_g	$V_{GS} = -4.5V, V_{DD} = -10V, I_D = -3.3A$	-	6.9	-	nC	
Gate-source charge	Q_{gs}		-	1.1	-		
Gate-drain charge	Q_{gd}		-	1.7	-		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = -6V, V_{GS} = -4.5V, R_L = 6\Omega, R_g = 6\Omega$	-	186	-	ns	
Turn-on rise time	t_r		-	86	-		
Turn-off delay time	$t_{d(off)}$		-	245	-		
Turn-off fall time	t_f		-	88	-		
Drain-Source Diode Characteristics							
Drain-source diode forward voltage	V_{SD} ^②	$V_{GS} = 0V, I_S = -2A$	-	-	-1.2	V	
Continuous drain-source diode forward current	I_S		-	-	-2.8	A	
Pulsed drain-source diode forward current	I_{SM} ^①		-	-	-11.2	A	

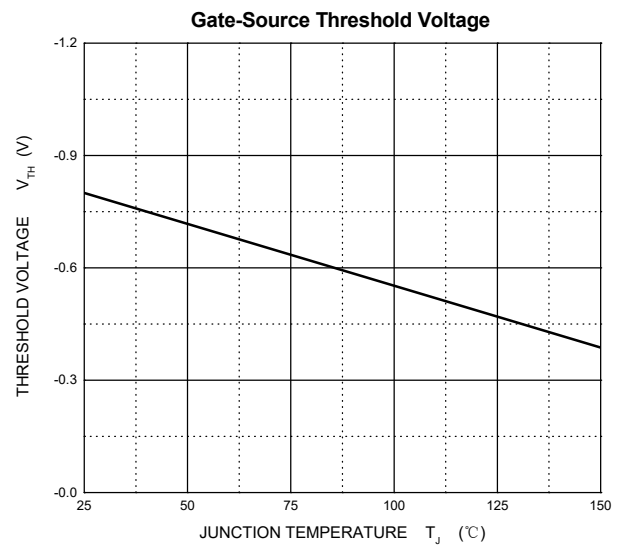
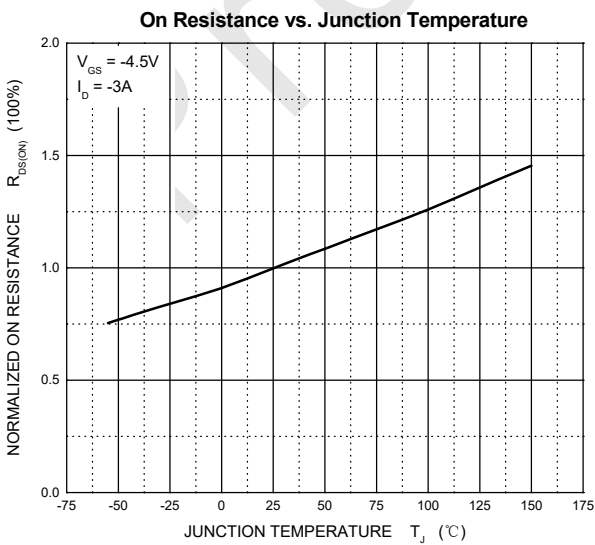
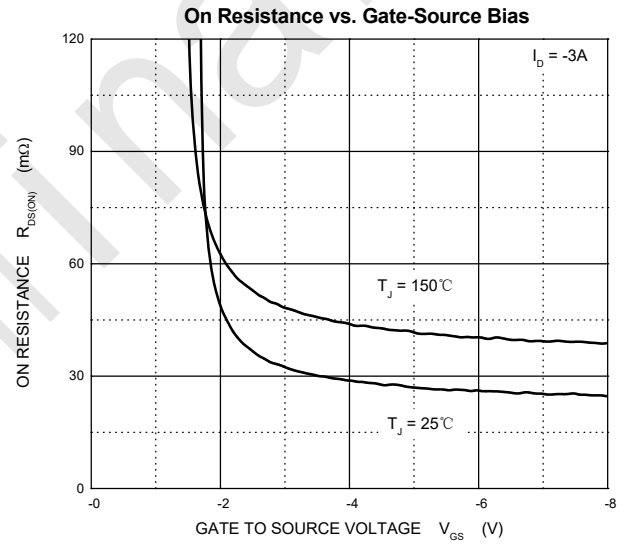
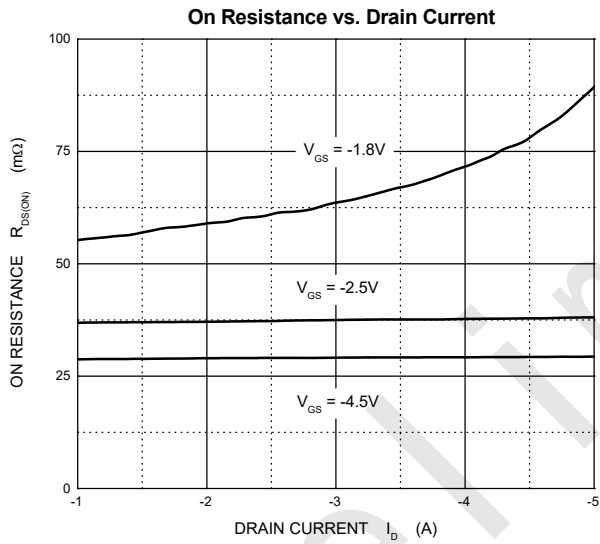
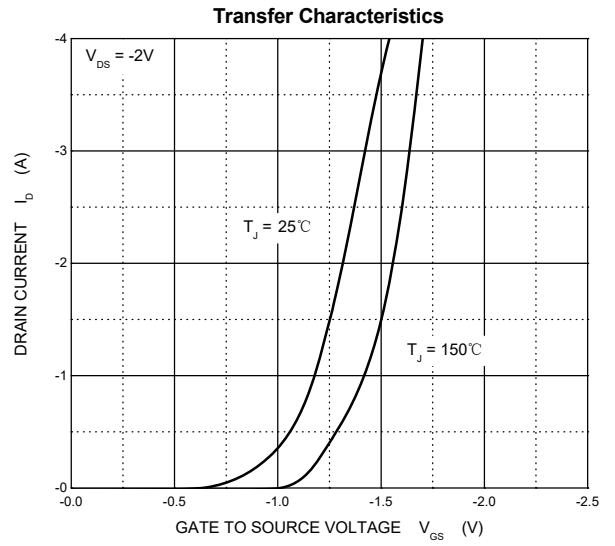
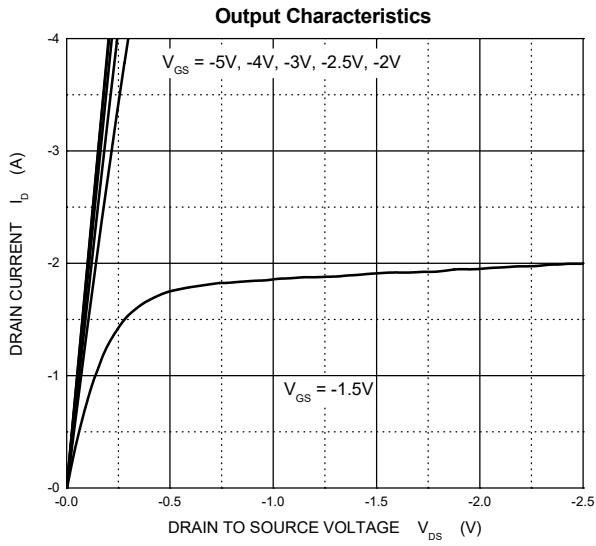
Notes:

1.Limited only by maximum temperature allowed.

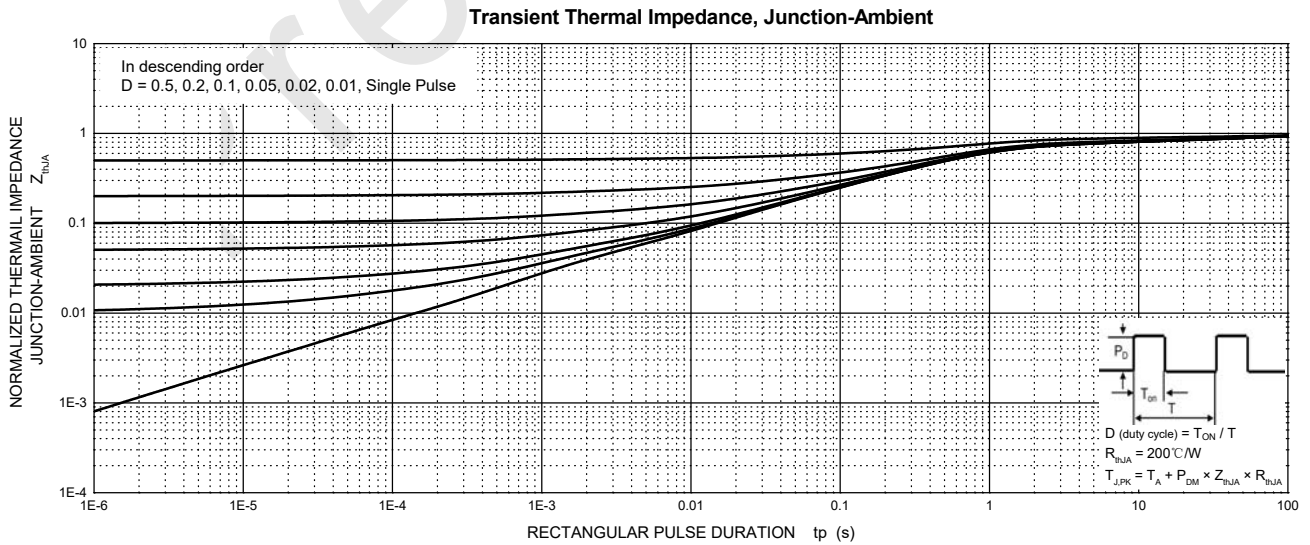
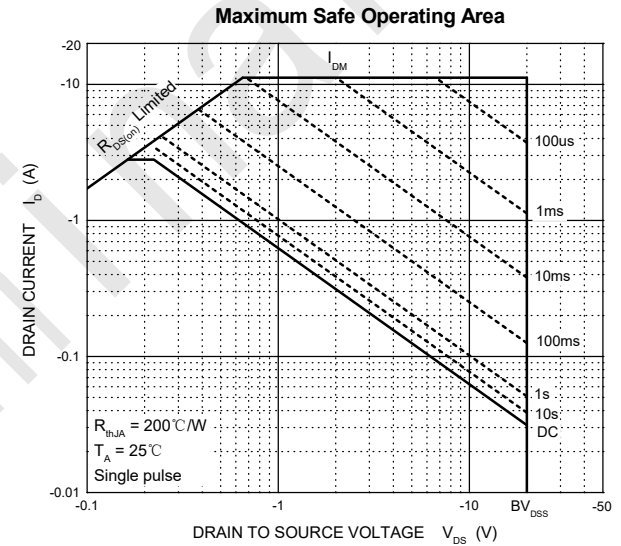
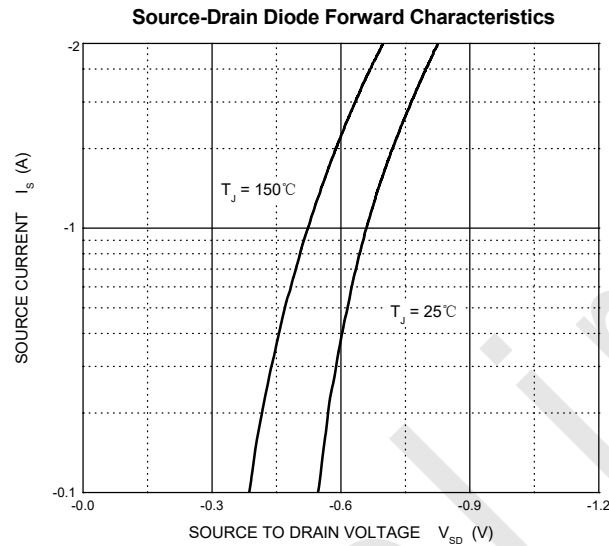
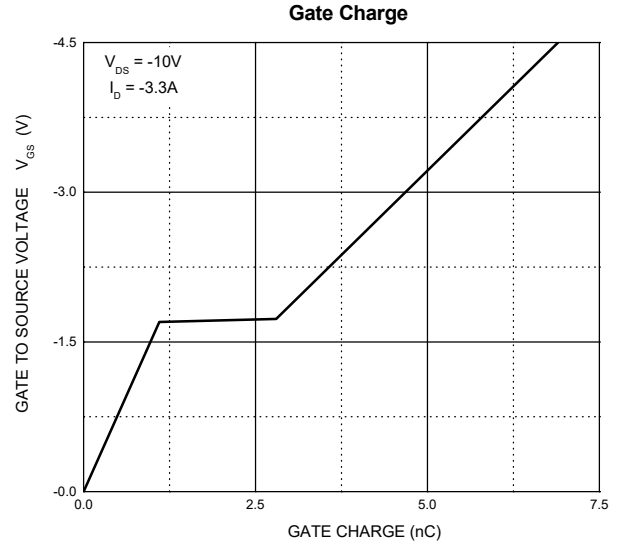
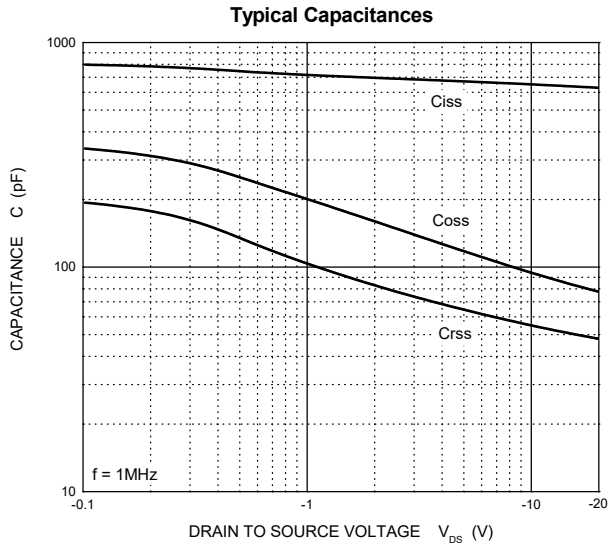
2.Pulse Test : Pulse Width $\leq 380\mu s$, duty cycle $\leq 2\%$.

3.Device mounted on 1 in² FR-4 board with single-sided 2oz. Copper, in a still air environment with $T_A=25^{\circ}\text{C}$.

Typical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified)

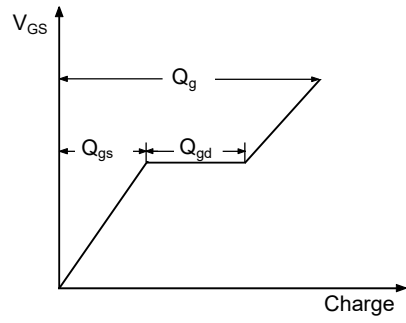


Typical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified)

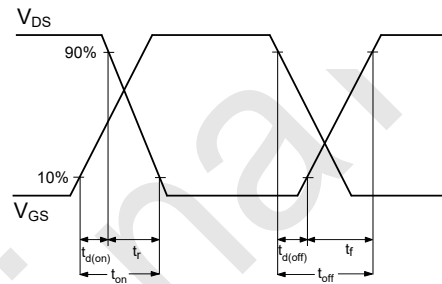
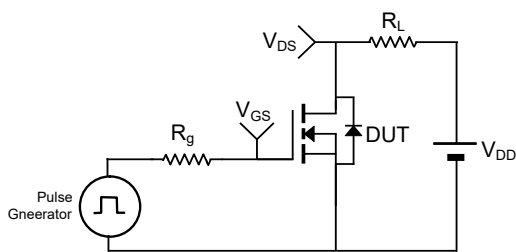


TEST CIRCUIT AND WAVEFORMS

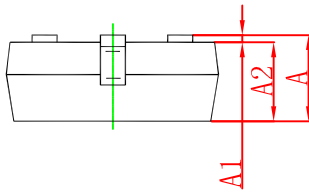
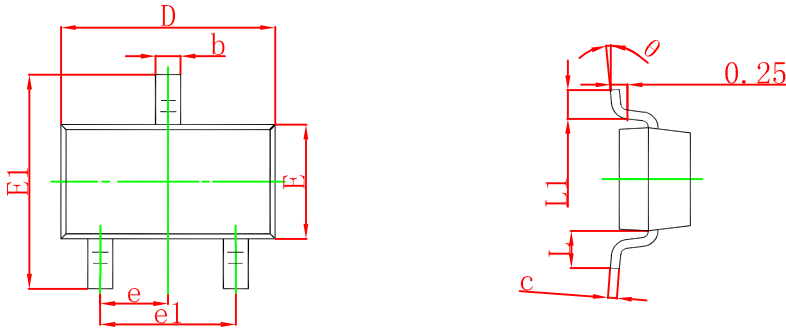
Gate Charge



Resistive Load Switching Time

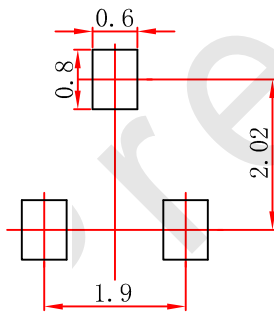


SOT-23 Package Outline Dimensions



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:

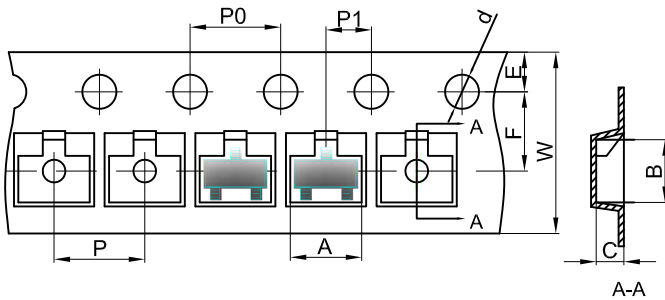
1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

NOTICE

JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape



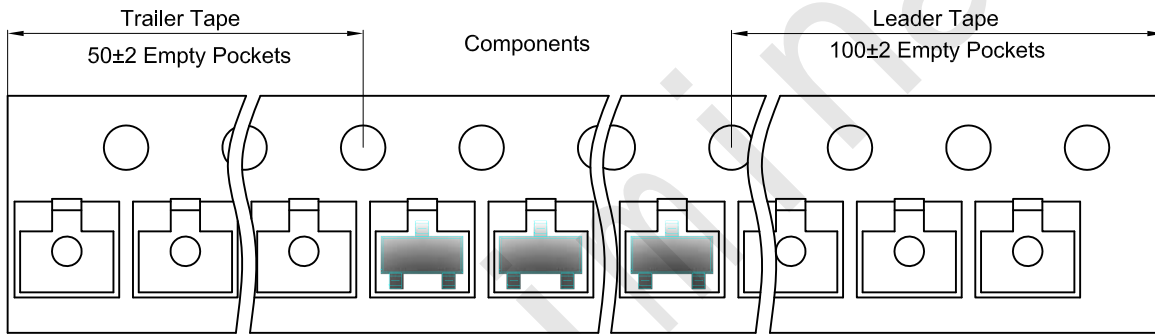
Packaging Description:

SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

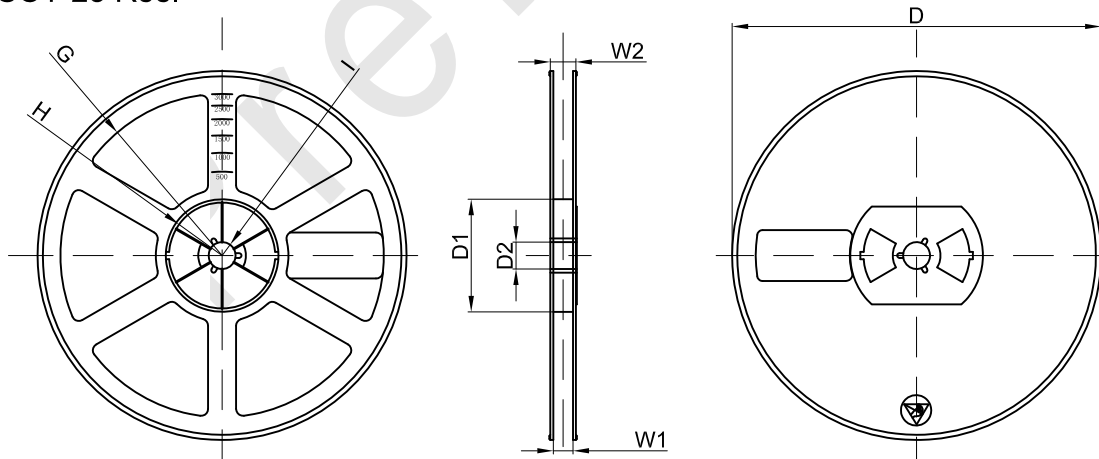
Dimensions are in millimeter

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	203×203×195	180,000 pcs	438×438×220	