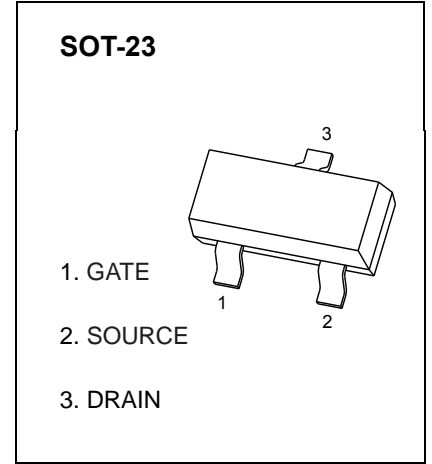




**SOT-23 Plastic-Encapsulate MOSFETS**

**CJ4459A** P-Channel MOSFET

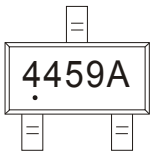
$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
-30V	46mΩ@-10V	-5A
	57mΩ@-4.5V	



**DESCRIPTION**

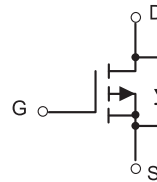
The CJ4459A combines advanced trench MOSFET technology with a low resistance package to provide extremely low  $R_{DS(ON)}$ . This device is ideal for load switch and battery protection applications.

**MARKING**



4459A = Device code  
Solid dot = Green molding compound device  
if none, the normal device

**Equivalent Circuit**



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$ ①	-5	A
Pulsed Drain Current	$I_{DM}$ ②	-30	A
Power Dissipation	$P_D$ ④	2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$ ④	62.5	°C/W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	°C

# MOSFET ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit	
<b>Off characteristics</b>							
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30	-	-	V	
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -30V, V_{GS} = 0V$	$T_J = 25^\circ\text{C}$	-	-	-1.0	$\mu A$
			$T_J = 125^\circ\text{C}$	-	-	-100	
Gate-body leakage current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	$\pm 100$	nA	
<b>On characteristics</b> <sup>③</sup>							
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0	-1.6	-2.5	V	
Static drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -5A$	-	37	46	m $\Omega$	
		$V_{GS} = -4.5V, I_D = -5A$	-	44	57	m $\Omega$	
Forward transconductance	$g_{FS}$	$V_{DS} = -5V, I_D = -5A$	-	6.5	-	S	
<b>Dynamic characteristics</b>							
Input capacitance	$C_{iss}$	$V_{DS} = -15V, V_{GS} = 0V, f = 1\text{MHz}$	-	683	-	$\mu F$	
Output capacitance	$C_{oss}$		-	97	-		
Reverse transfer capacitance	$C_{rss}$		-	54.6	-		
Gate resistance	$R_g$	$f = 1\text{MHz}$	-	14	-	$\Omega$	
<b>Switching characteristics</b>							
Total gate charge	$Q_g$	$V_{GS} = -4.5V, V_{DD} = -15V, I_D = -5A$	-	5.6	-	nC	
Total gate charge	$Q_g$	$V_{GS} = -10V, V_{DD} = -15V, I_D = -5A$	-	11.4	-		
Gate-source charge	$Q_{gs}$		-	2.1	-		
Gate-drain charge	$Q_{gd}$		-	1.7	-		
<b>Drain-Source Diode Characteristics</b>							
Drain-source diode forward voltage	$V_{SD}$ <sup>③</sup>	$V_{GS} = 0V, I_S = -1A$	-	-	-1.0	V	
Continuous drain-source diode forward current	$I_S$ <sup>①</sup>		-	-	-5	A	
Pulsed drain-source diode forward current	$I_{SM}$ <sup>①②</sup>		-	-	-30	A	

Notes:

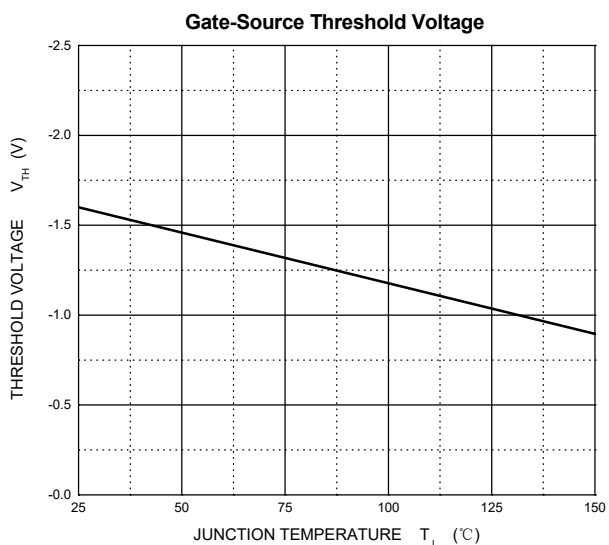
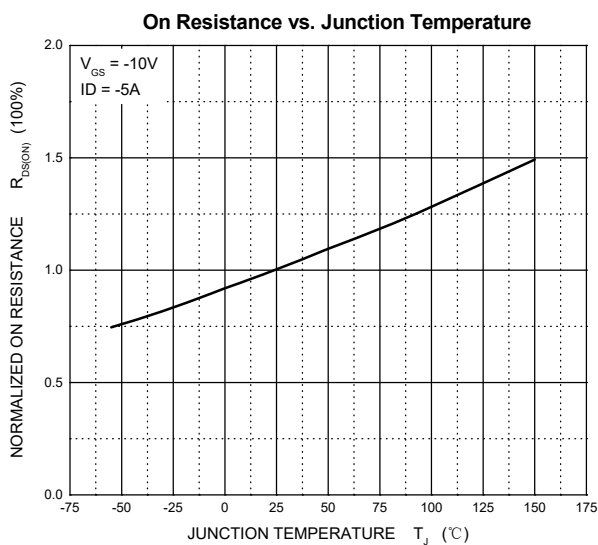
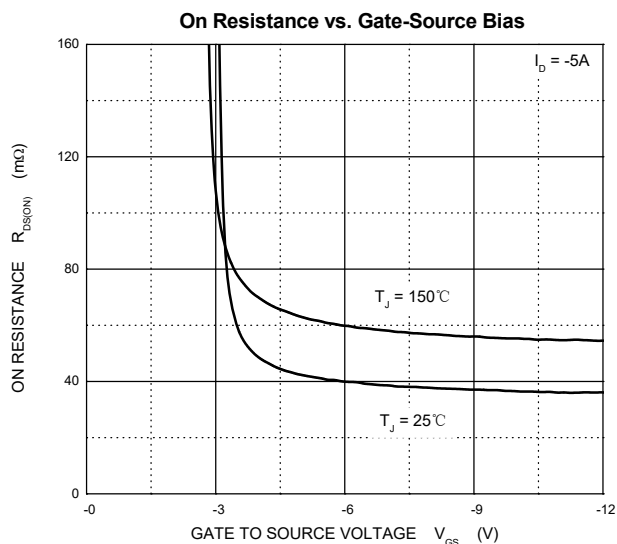
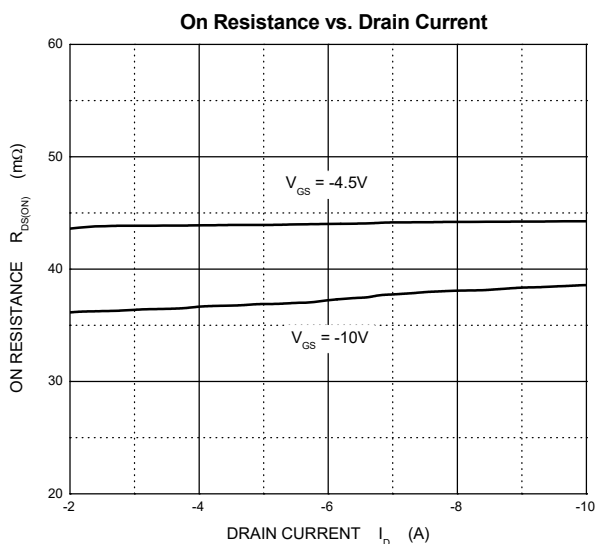
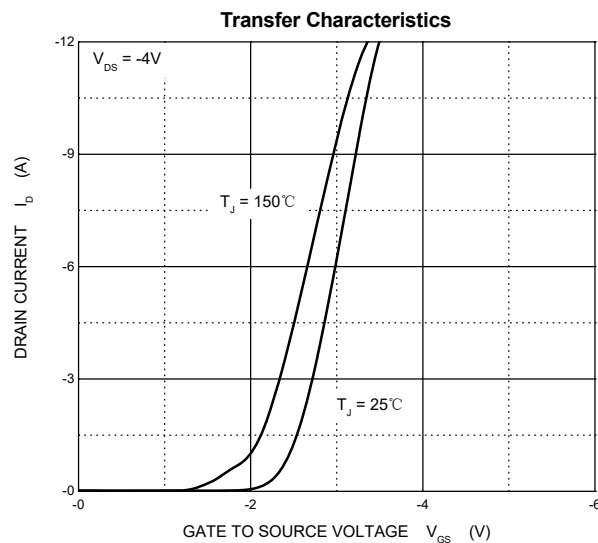
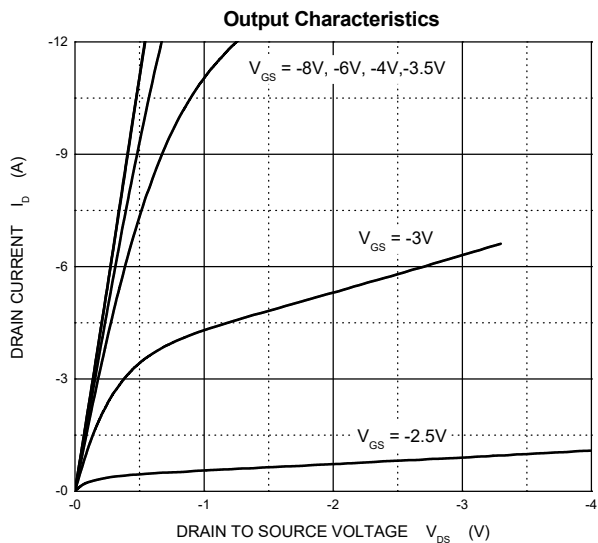
1.  $T_A = 25^\circ\text{C}$ .

2. Limited only by maximum temperature allowed.

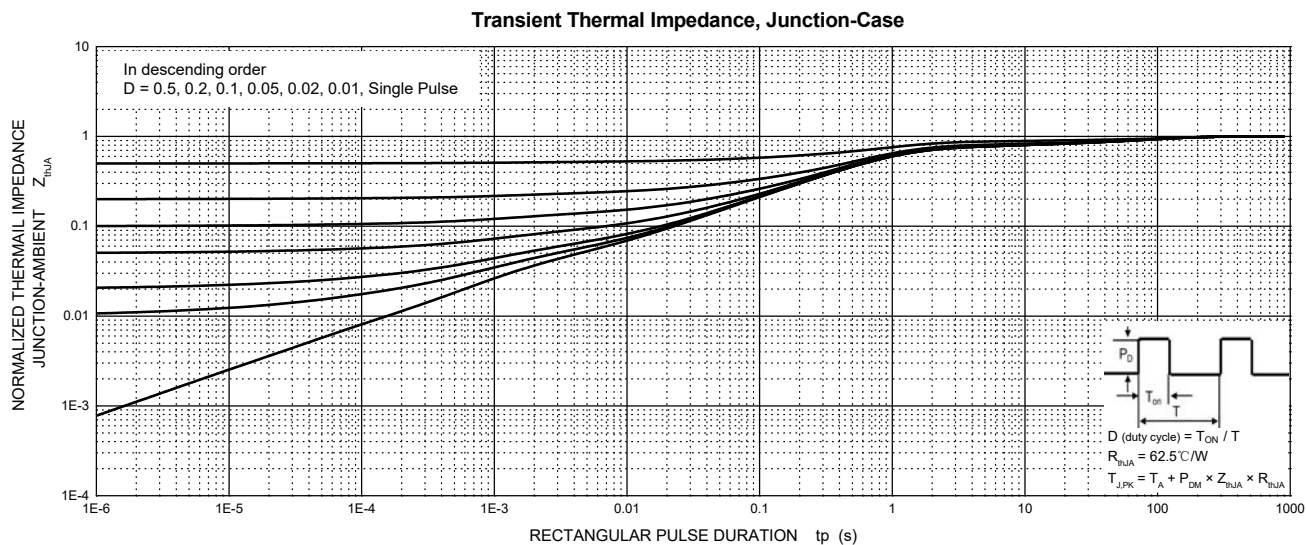
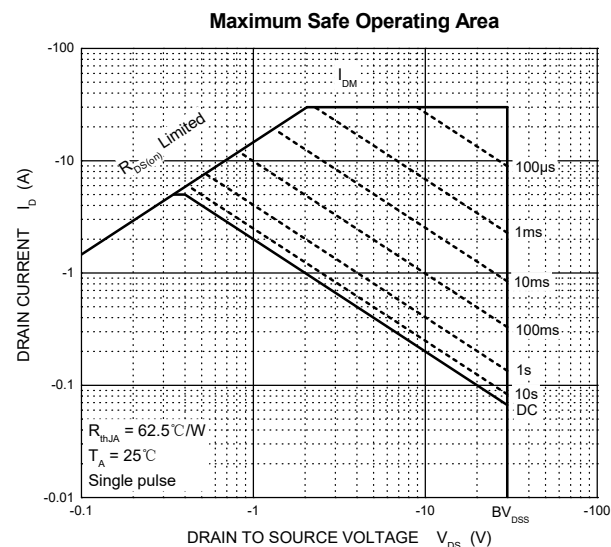
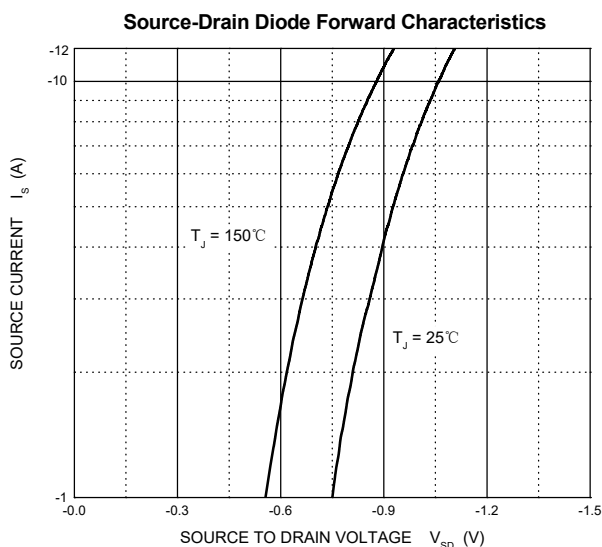
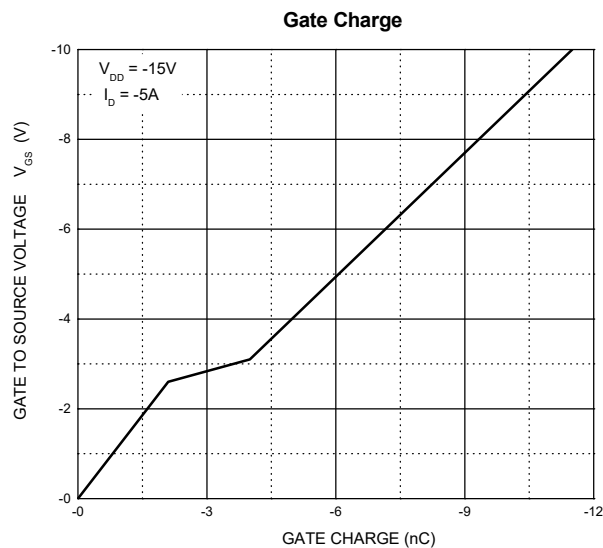
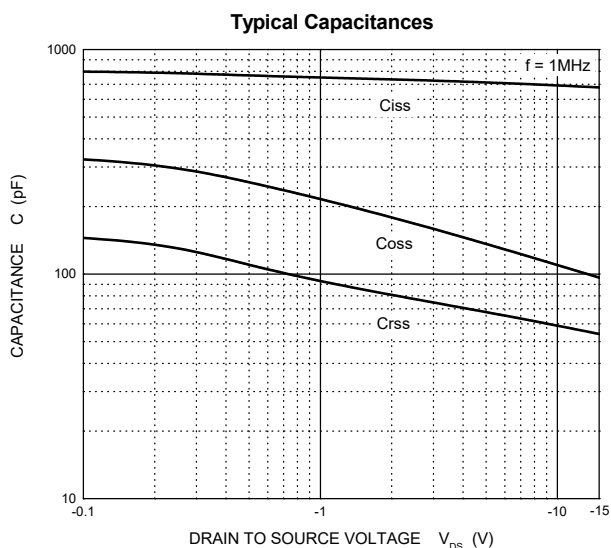
3. Pulse Test : Pulse Width  $\leq 380\mu s$ , duty cycle  $\leq 2\%$ .

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

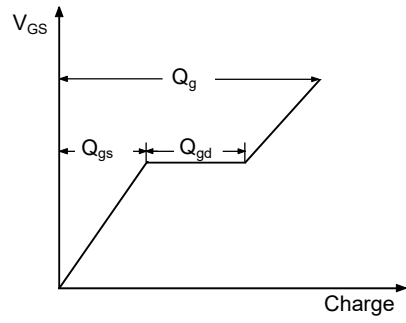
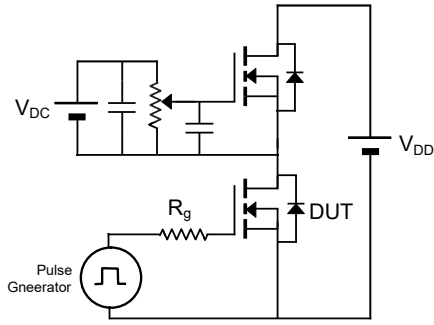
# Typical Characteristics ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)



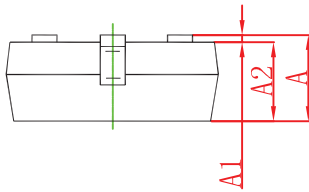
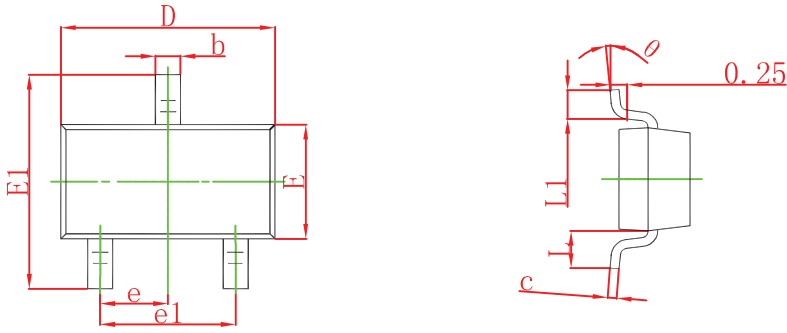
# Typical Characteristics ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)



Gate Charge

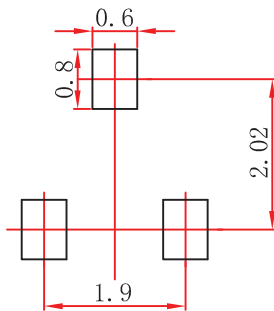


## SOT-23 Package Outline Dimensions



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:**

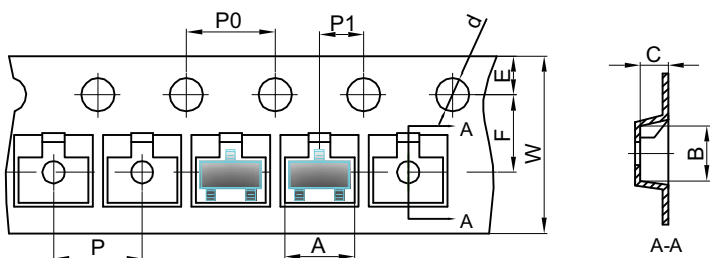
1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

**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

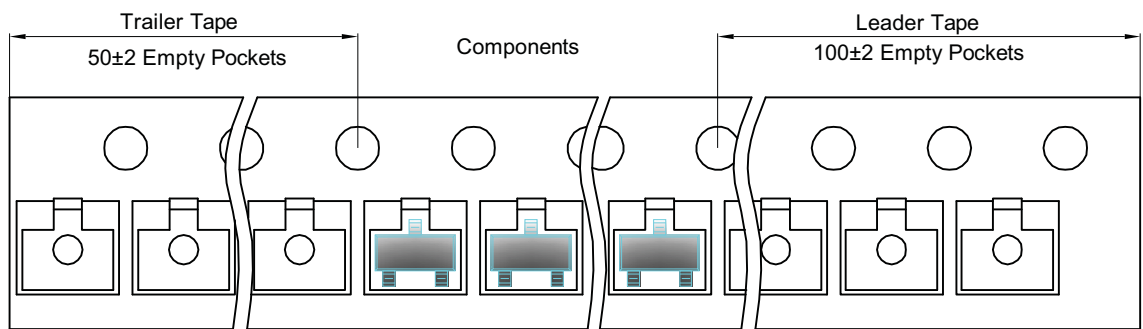
## SOT-23 Embossed Carrier Tape



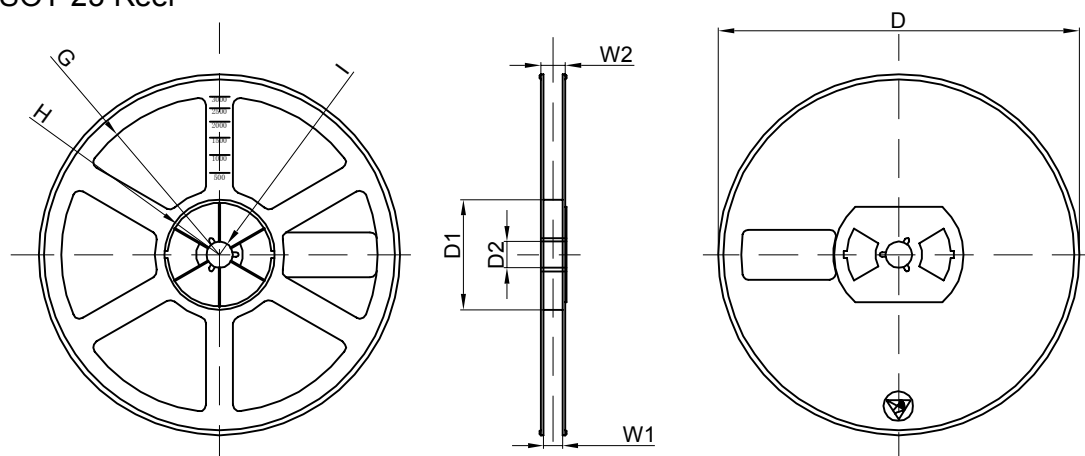
**Packaging Description:**  
 SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed 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	30,000 pcs	203×203×195	120,000 pcs	438×438×220	

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