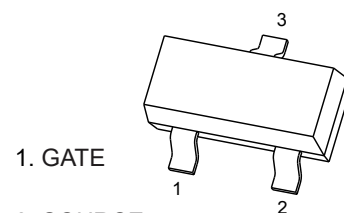




SOT-23 Plastic-Encapsulate MOSFETS

CJ4459A P-Channel MOSFET

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

SOT-23

1. GATE

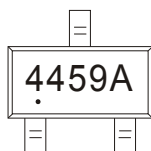
2. SOURCE

3. DRAIN

DESCRIPTION

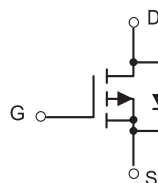
The CJ4459A combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

MARKING



4459A = Device code
Solid dot = Green molding compound device.

Equivalent Circuit



MAXIMUM RATINGS ($T_J=25^{\circ}\text{C}$ 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	$^{\circ}\text{C/W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^{\circ}\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS

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

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
Off characteristics							
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$		-30	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$	$T_J = 25^{\circ}C$	-	-	-1.0	μA
			$T_J = 125^{\circ}C$	-	-	-100	
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$		-	-	± 100	nA
On characteristics ^③							
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-sate resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -5A$		-	37	46	m Ω
		$V_{GS} = -4.5V, I_D = -5A$		-	44	57	m Ω
Forward tranconductance	g_{FS}	$V_{DS} = -5V, I_D = -5A$		-	6.5	-	S
Dynamic characteristics							
Input capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		-	683	-	pF
Output capacitance	C_{oss}			-	97	-	
Reverse transfer capacitance	C_{rss}			-	54.6	-	
Gate resistance	R_g	$f = 1MHz$		-	14	-	Ω
Switching characteristics							
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	-	
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -15V, V_{GS} = -10V, I_D = -5A, R_g = 6\Omega$		-	2.7	-	ns
Turn-on rise time	t_r			-	9.1	-	
Turn-off delay time	$t_{d(off)}$			-	28.3	-	
Turn-off fall time	t_f			-	22.9	-	
Drain-Source Diode Characteristics							
Drain-source diode forward voltage	V_{SD} ^③	$V_{GS} = 0V, I_S = -1A$		-	-	-1.0	V
Continuous drain-source diode forward current	I_S ^①			-	-	-5	A
Pulsed drain-source diode forward current	I_{SM} ^{①②}			-	-	-30	A

Notes:

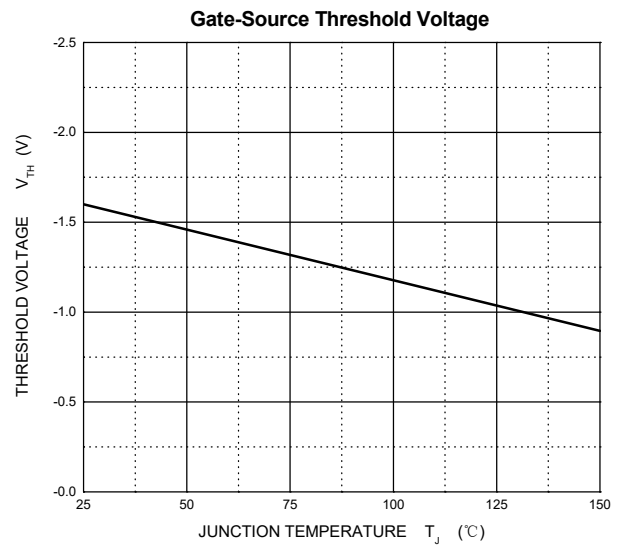
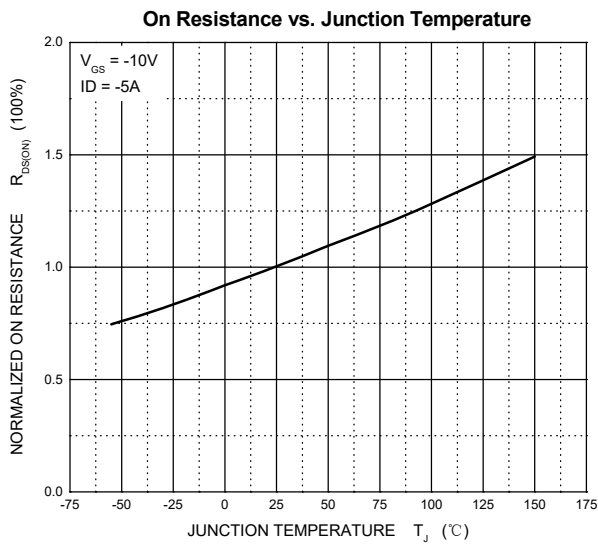
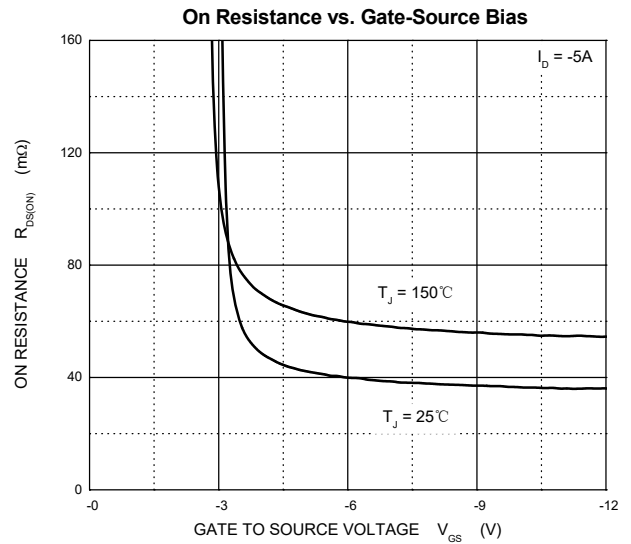
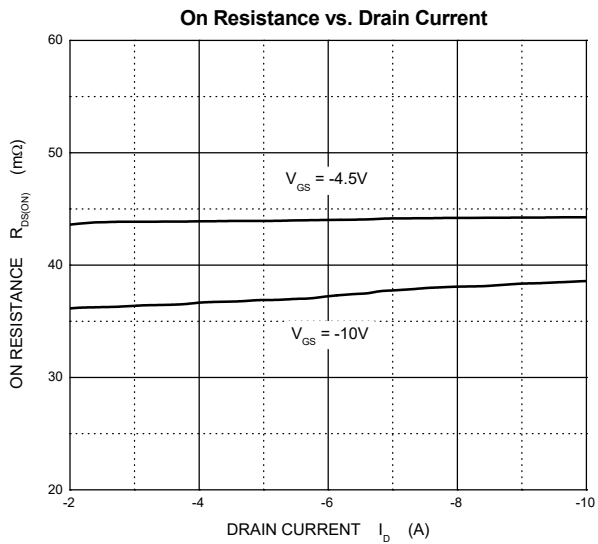
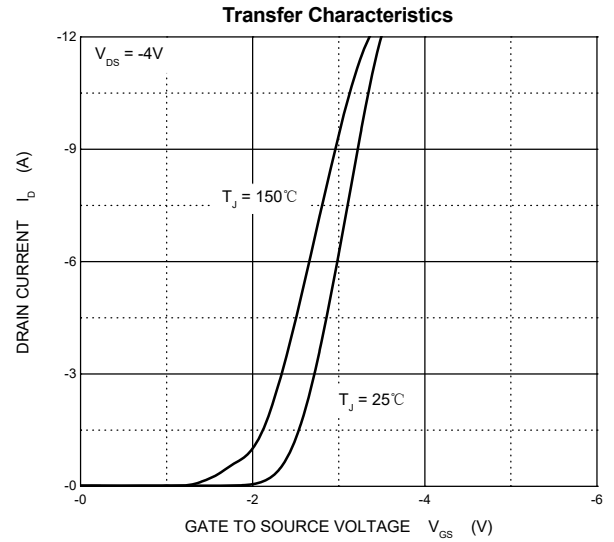
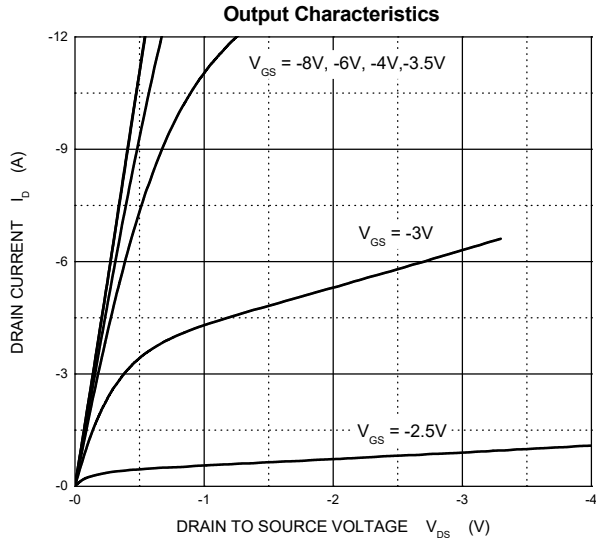
1. $T_A = 25^{\circ}\text{C}$.

2. Limited only by maximum temperature allowed.

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

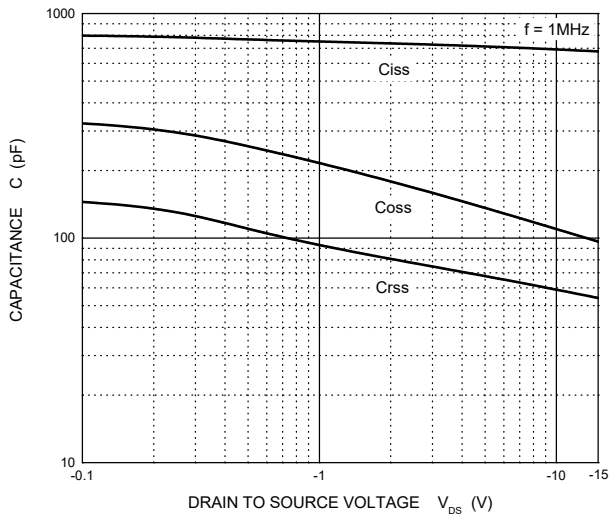
4. Device mounted on 1 in² FR-4 board with 2-sided 2oz. Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.

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

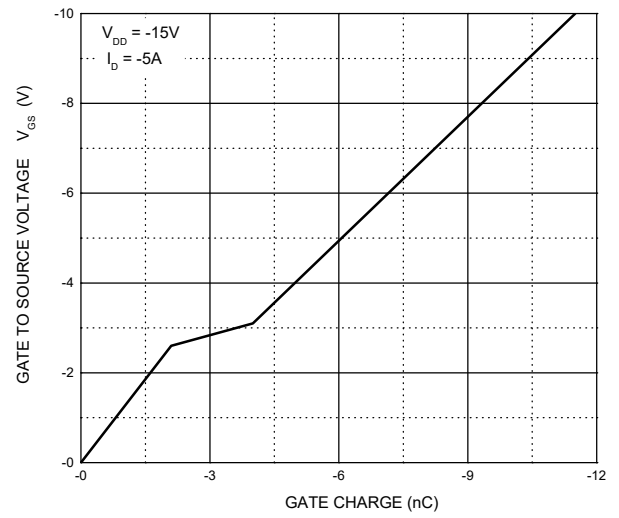


Typical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified)

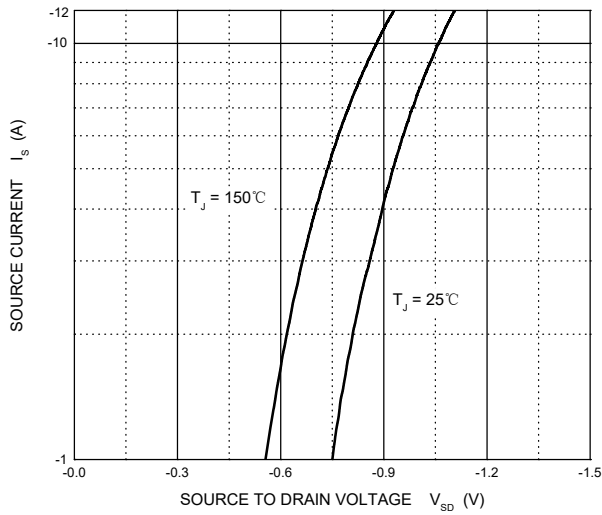
Typical Capacitances



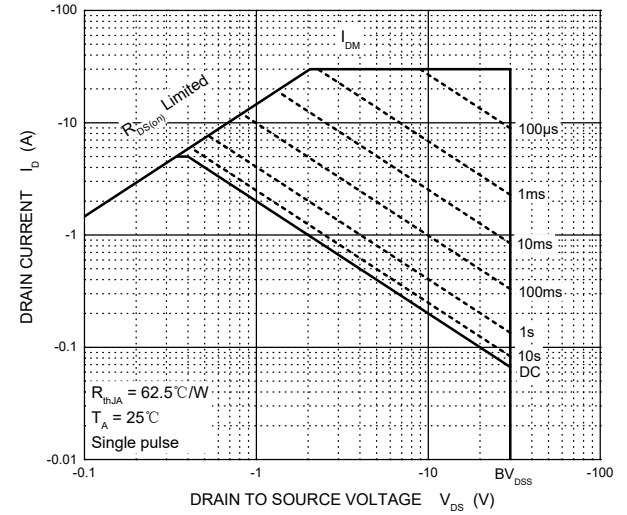
Gate Charge



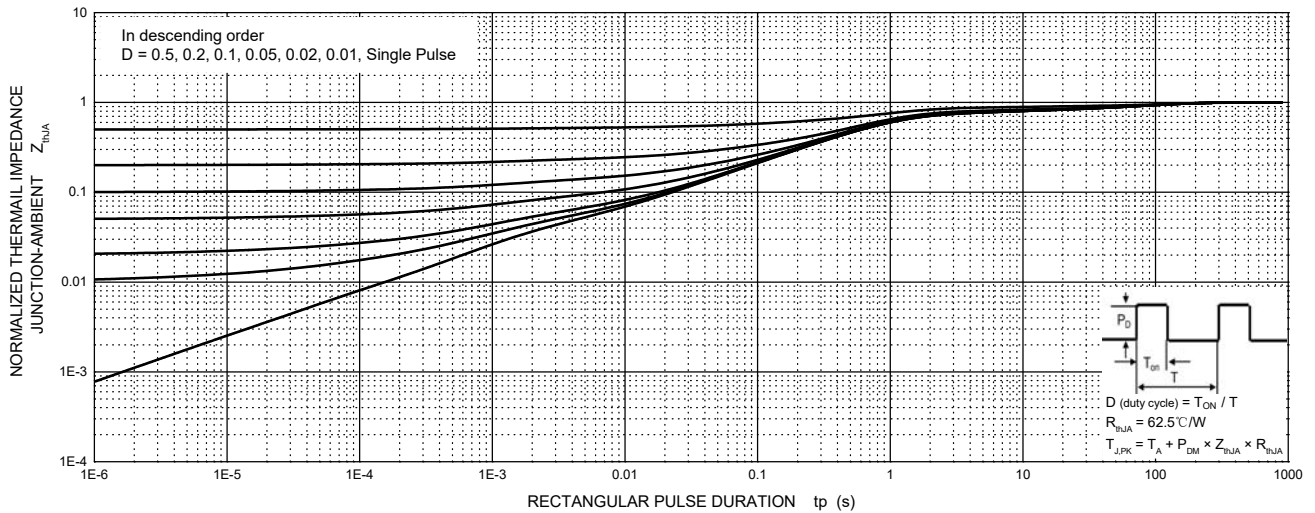
Source-Drain Diode Forward Characteristics



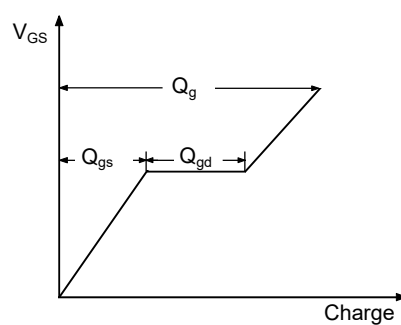
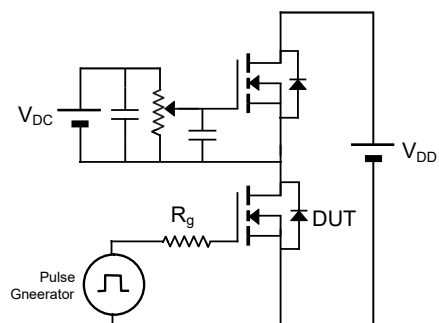
Maximum Safe Operating Area



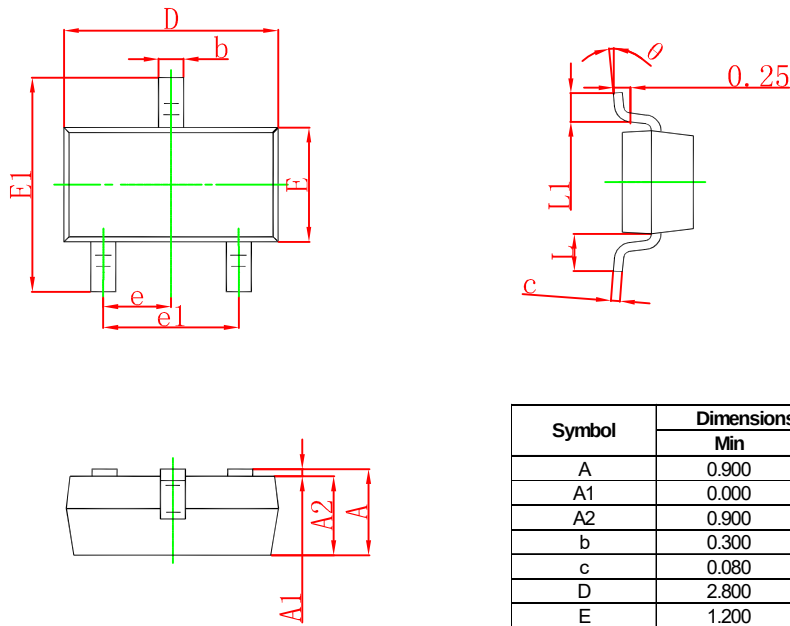
Transient Thermal Impedance, Junction-Case



Gate Charge

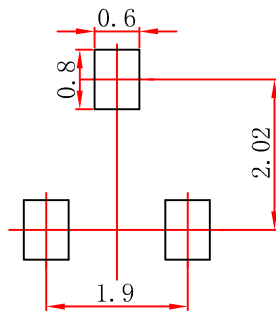


SOT-23 Package Outline Dimensions



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



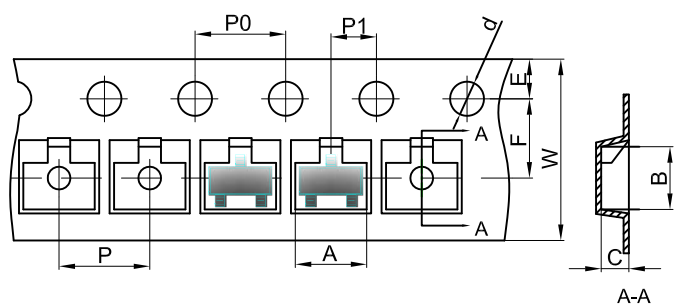
Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 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 Embossed Carrier Tape

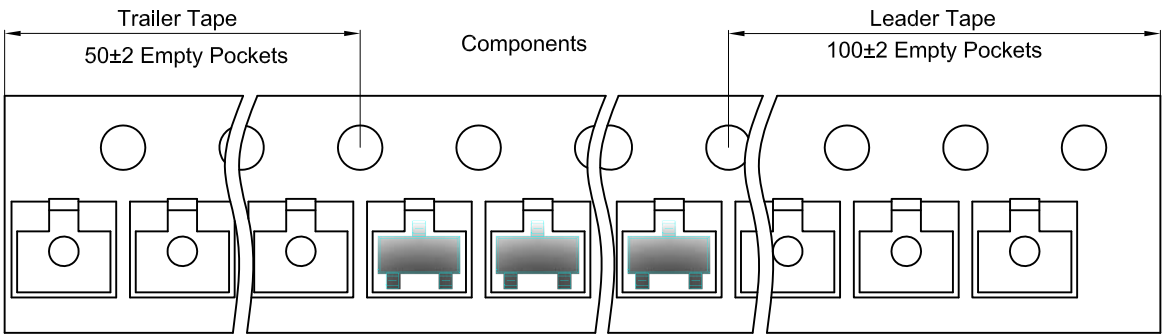


Packaging Description:

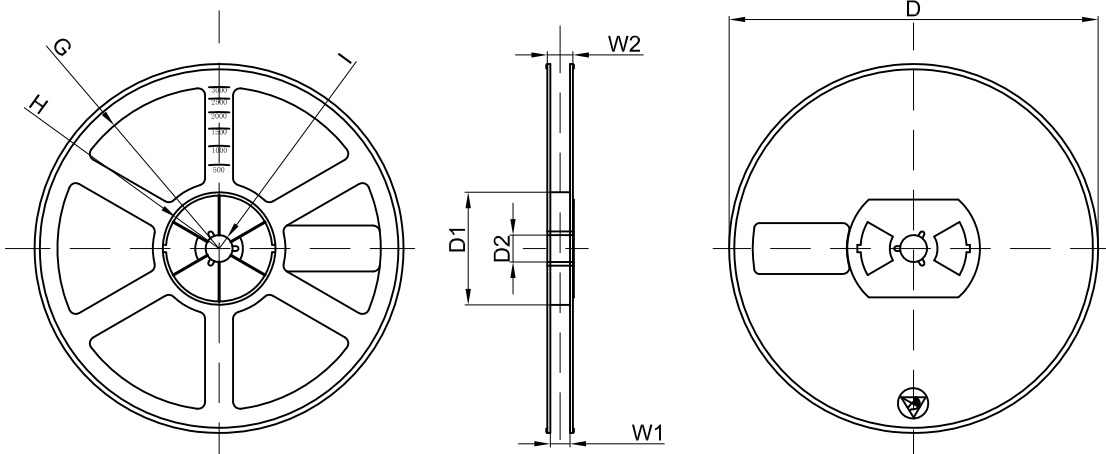
SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in 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	