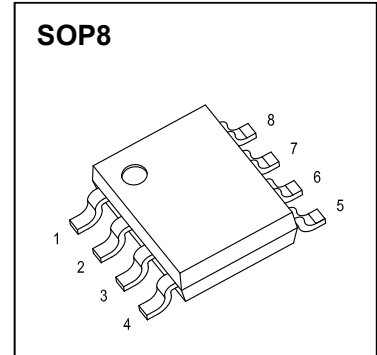




## SOP8 Plastic-Encapsulate MOSFETS

### CJQ4407A P-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
-30 V	10.5mΩ@-10V	-11A
	11.5mΩ@-6V	



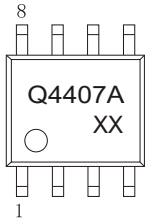
#### DESCRIPTION

The CJQ4407A uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. This device is suitable for use in a wide variety of applications.

#### FEATURE

- Surface Mount Package
- Super High Density Cell Design for Extremely Low  $R_{DS(ON)}$

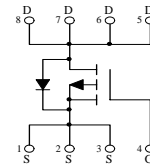
#### MARKING



Front side

Q4407A = Device code  
XX = Code

#### Equivalent Circuit



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$ ④	-11	A
Pulsed Drain Current	$I_{DM}$ ④	-44	A
Single Pulsed Avalanche Energy	$E_{AS}$ ②	110	mJ
Power Dissipation	$P_D$ ④	2.65	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55~+150	°C

#### Thermal Characteristics

Parameter	Symbol	Typ	Max	Units	
Maximum Junction-to-Ambient	$R_{\theta JA}$ ④	t ≤ 10s	32	47	°C/W
		Steady State	63	95	

# 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	$I_{DSS}$	$V_{DS} = -24V, V_{GS} = 0V$	$T_J = 25^{\circ}\text{C}$	-	-	-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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.2	-1.6	-2.2	V	
Static drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -10A$	-	10.5	14	m $\Omega$	
		$V_{GS} = -6V, I_D = -8A$	-	11.5	16	m $\Omega$	
<b>Dynamic characteristics</b>							
Input capacitance	$C_{iss}$	$V_{DS} = -15V, V_{GS} = 0V, f = 1\text{MHz}$	-	2015	-	$\mu F$	
Output capacitance	$C_{oss}$		-	277	-		
Reverse transfer capacitance	$C_{rss}$		-	210	-		
Gate resistance	$R_g$	$f = 1\text{MHz}$	-	11	-	$\Omega$	
<b>Switching characteristics</b>							
Total gate charge	$Q_g$	$V_{GS} = -10V, V_{DD} = -15V, I_D = -10A$	-	38	-	nC	
Gate-source charge	$Q_{gs}$		-	6.3	-		
Gate-drain charge	$Q_{gd}$		-	7.9	-		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -15V, V_{GS} = -10V, R_L = 1.25\Omega, R_G = 3\Omega$	-	6.5	-	ns	
Turn-on rise time	$t_r$		-	3.3	-		
Turn-off delay time	$t_{d(off)}$		-	74	-		
Turn-off fall time	$t_f$		-	62	-		
<b>Drain-Source Diode Characteristics</b>							
Drain-source diode forward voltage	$V_{SD}$ <sup>③</sup>	$V_{GS} = 0V, I_S = -2A$	-	-	-1.2	V	
Continuous drain-source diode forward current	$I_S$ <sup>④</sup>		-	-	-11	A	
Pulsed drain-source diode forward current	$I_{SM}$ <sup>①④</sup>		-	-	-44	A	

Notes:

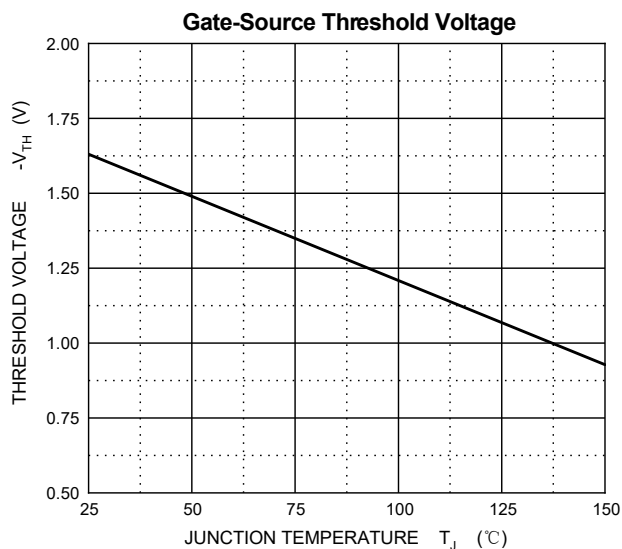
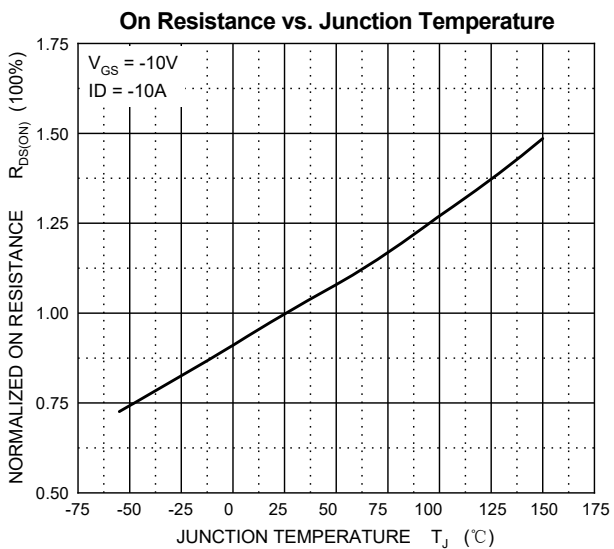
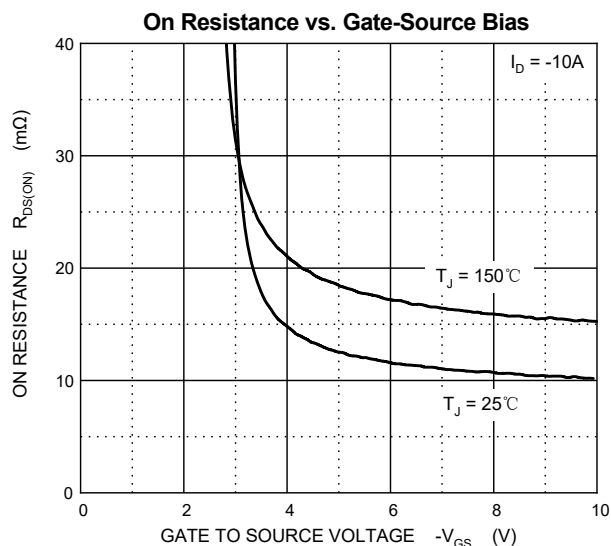
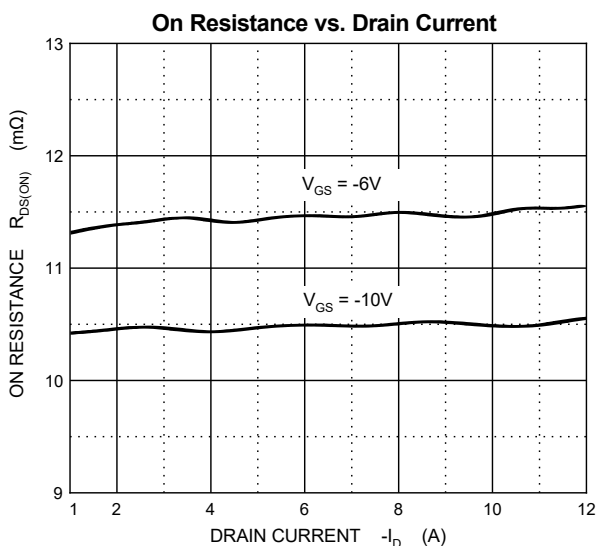
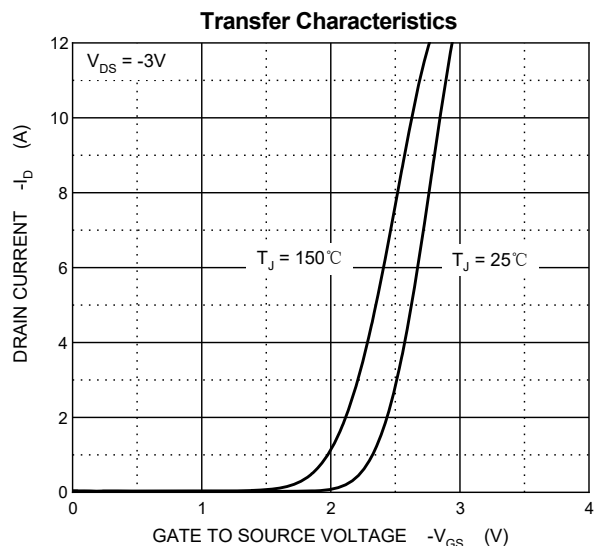
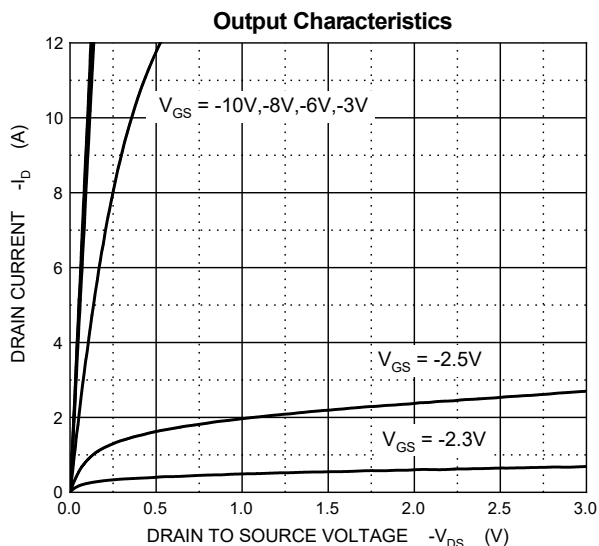
1. Limited only by maximum temperature allowed.

2.  $V_{DD} = -15V, V_{GS} = -10V, L = 0.5\text{mH}, R_g = 25\Omega$  Starting  $T_J = 25^{\circ}\text{C}$ .

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

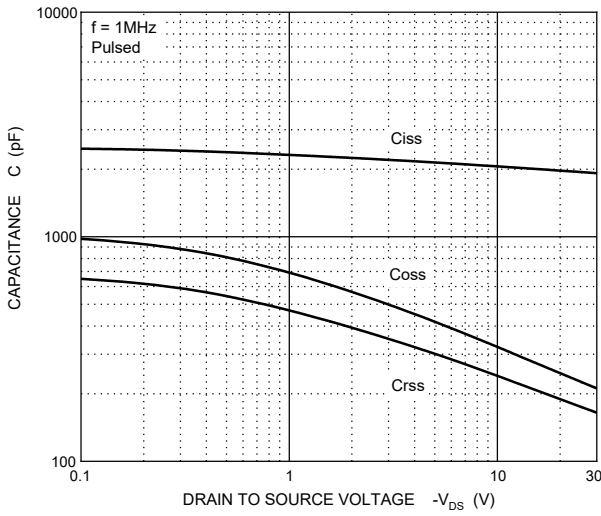
4. Device mounted on 1 in<sup>2</sup> FR-4 board with 2oz. double-sided Copper, in a still air environment with  $T_A = 25^{\circ}\text{C}$ . The current rating is based on the  $t \leq 10\text{s}$  thermal resistance rating.

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

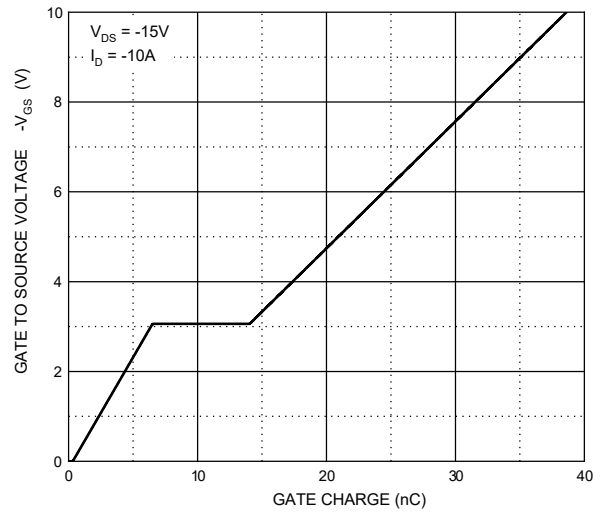


# Typical Characteristics ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

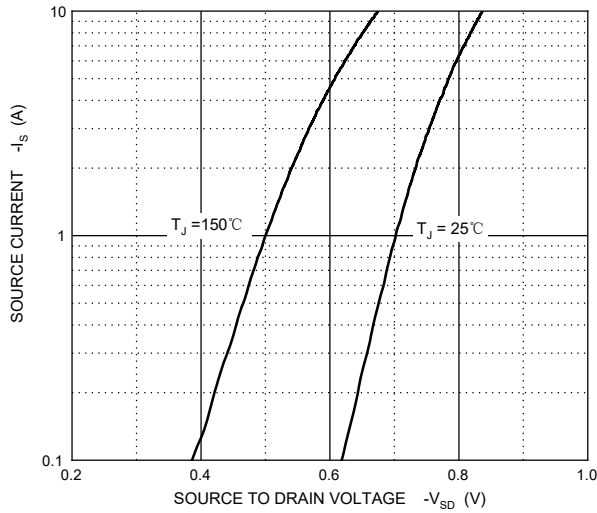
**Typical Capacitances**



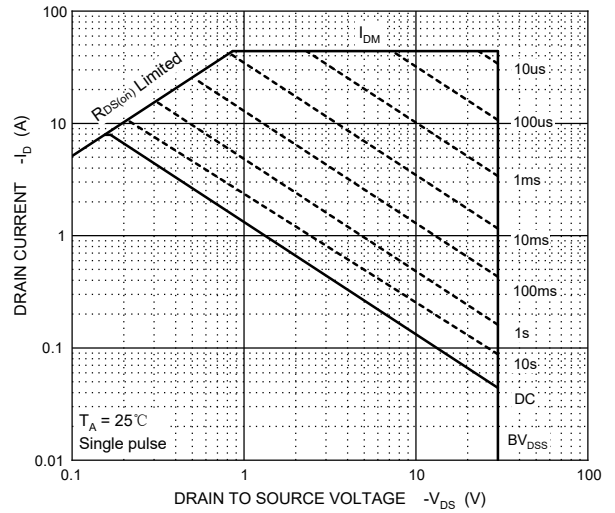
**Gate Charge**



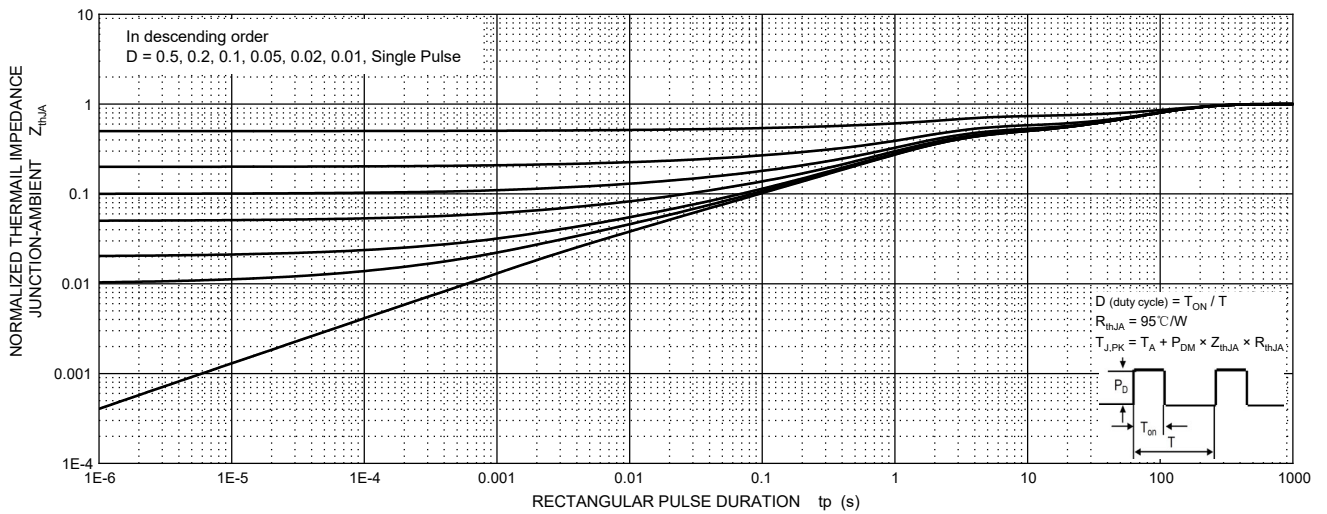
**Source-Drain Diode Forward Characteristics**



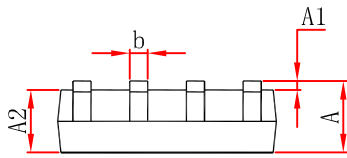
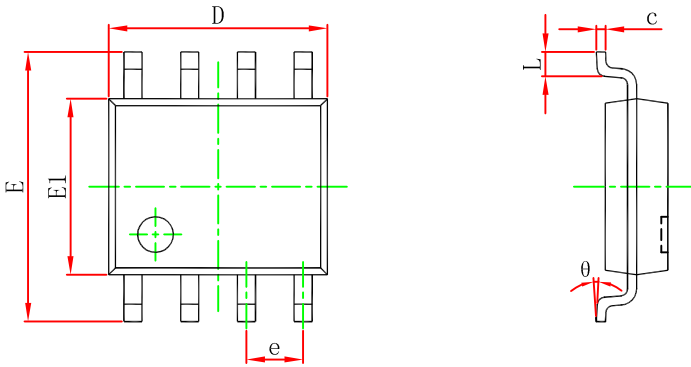
**Maximum Safe Operating Area**



**Transient Thermal Impedance, Junction-Ambient**

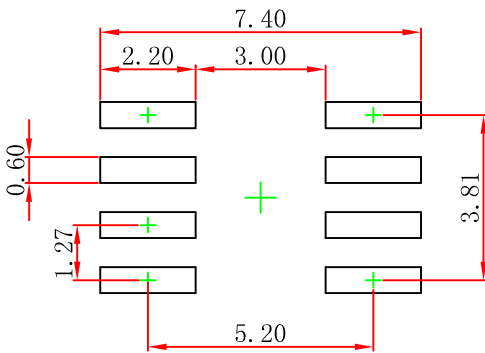


## SOP8 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.450	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
theta	0°	8°	0°	8°

## SOP8 Suggested Pad Layout



### Note:

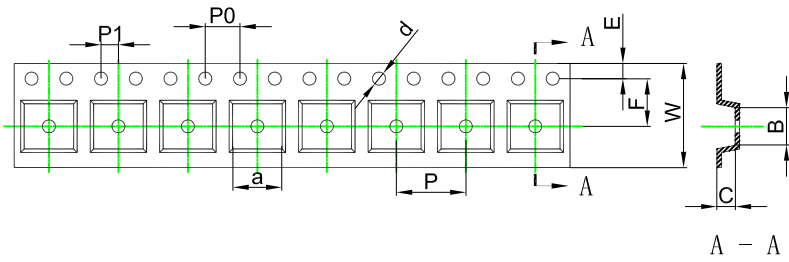
1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

### 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.

# SOP8 Tape and Reel

## SOP8 Embossed Carrier Tape



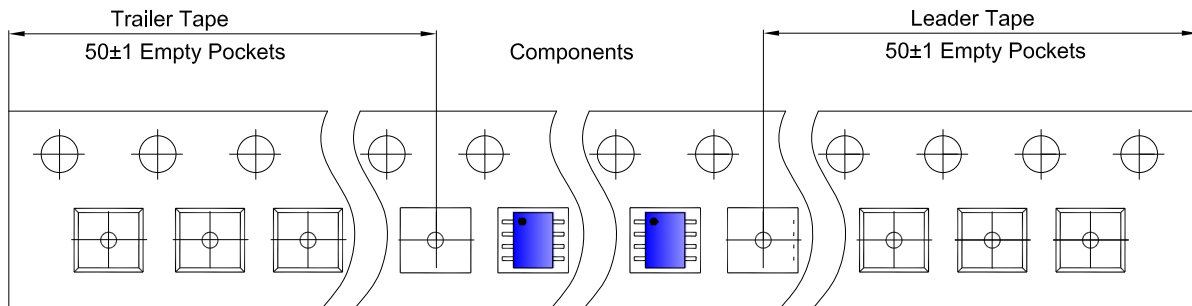
### Packaging Description:

SOP8 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 4000 units per 13" or 33cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

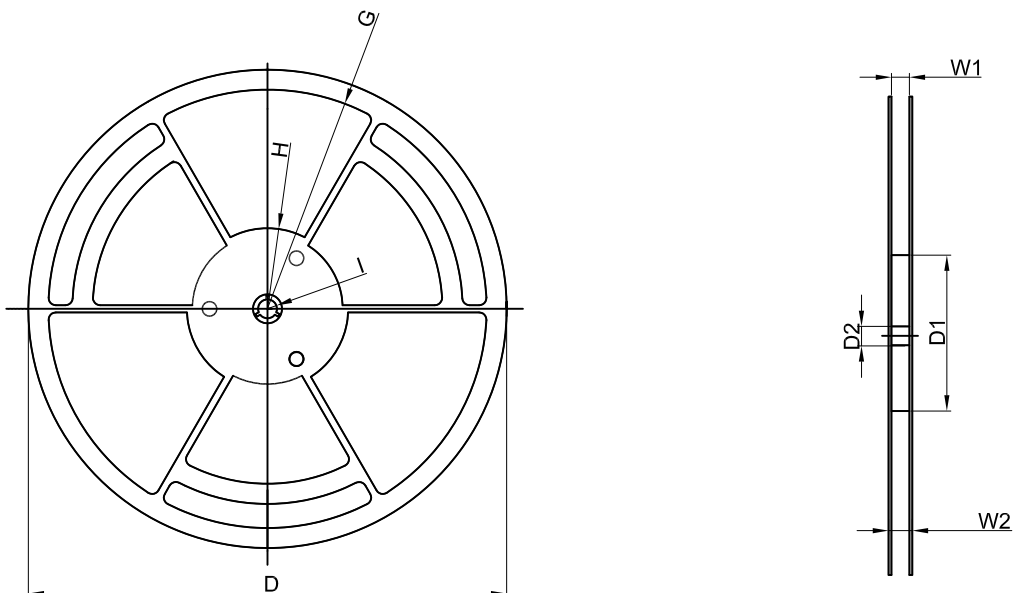
ALL DIM IN mm

Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
SOP8	6.40	5.40	2.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

## SOP8 Tape Leader and Trailer



## SOP8 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
13" Dia	Ø330.00	100.00	13.00	R151.00	R56.00	R6.50	12.40	17.60

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
4,000 pcs	13 inch	8,000 pcs	360×360×65	40,000 pcs	378×358×382	