

- ★ 100% EAS Guaranteed
- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology

## Product Summary



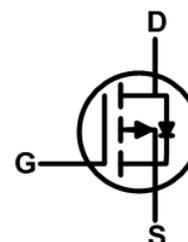
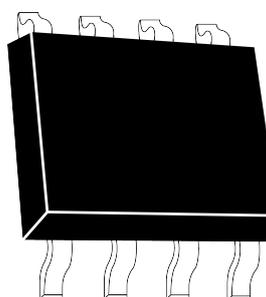
BVDSS	RDSON	ID
-30V	16mΩ	-10A

## General Description

The JH4435 is the high cell density trenched P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The JH4435 meet the RoHS and Green Product requirement 100% EAS guaranteed with full function reliability approved.

## SOP8 Pin Configuration



## Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise specified)

Symbol	Parameter	Max.	Units
V <sub>DSS</sub>	Drain-Source Voltage	-30	V
V <sub>GSS</sub>	Gate-Source Voltage	±20	V
I <sub>D</sub>	Continuous Drain Current	T <sub>C</sub> = 25°C	-10
		T <sub>C</sub> = 100°C	-7
I <sub>DM</sub>	Pulsed Drain Current <sup>note1</sup>	-40	A
P <sub>D</sub>	Power Dissipation	T <sub>A</sub> = 25°C	3.7
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	33.8	°C/W
T <sub>J</sub> , T <sub>STG</sub>	Operating and Storage Temperature Range	-55 to +150	°C

## Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise specified)

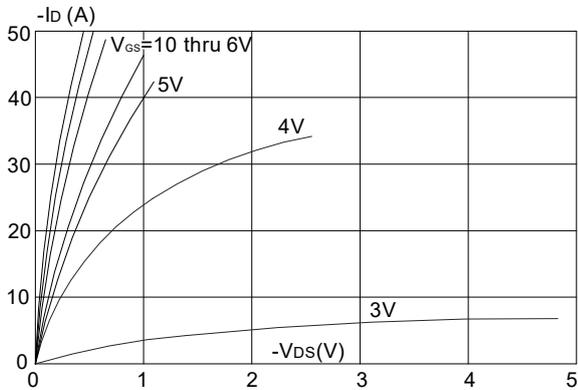
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</b>						
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> = -250μA	-30	-	-	V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V,	-	-	-1	μA
I <sub>GSS</sub>	Gate to Body Leakage Current	V <sub>DS</sub> =0V, V <sub>GS</sub> = ±20V	-	-	±100	nA
<b>On Characteristics</b>						
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1.0	-1.5	-2.4	V
R <sub>DS(on)</sub>	Static Drain-Source on-Resistance <small>note2</small>	V <sub>GS</sub> = -10V, I <sub>D</sub> = -10A	-	16	23	mΩ
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -5A	-	25	34	
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> = -15V, V <sub>GS</sub> = 0V, f = 1.0MHz	-	1550	-	pF
C <sub>oss</sub>	Output Capacitance		-	327	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		-	278	-	pF
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> = -15V, I <sub>D</sub> = -9.1A, V <sub>GS</sub> = -10V	-	30	-	nC
Q <sub>gs</sub>	Gate-Source Charge		-	5.3	-	nC
Q <sub>gd</sub>	Gate-Drain("Miller") Charge		-	7.6	-	nC
<b>Switching Characteristics</b>						
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>DD</sub> = -15V, I <sub>D</sub> = -6A, V <sub>GS</sub> =-10V, R <sub>GEN</sub> =2.5Ω	-	14	-	ns
t <sub>r</sub>	Turn-on Rise Time		-	20	-	ns
t <sub>d(off)</sub>	Turn-off Delay Time		-	95	-	ns
t <sub>f</sub>	Turn-off Fall Time		-	65	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
I <sub>S</sub>	Maximum Continuous Drain to Source Diode Forward Current		-	-	-10	A
I <sub>SM</sub>	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-40	A
V <sub>SD</sub>	Drain to Source Diode Forward Voltage	V <sub>GS</sub> = 0V, I <sub>S</sub> = -10A	-	-0.8	-1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

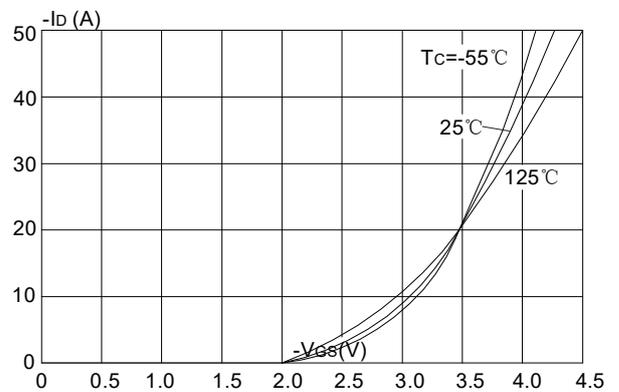
2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

## Typical Performance Characteristics

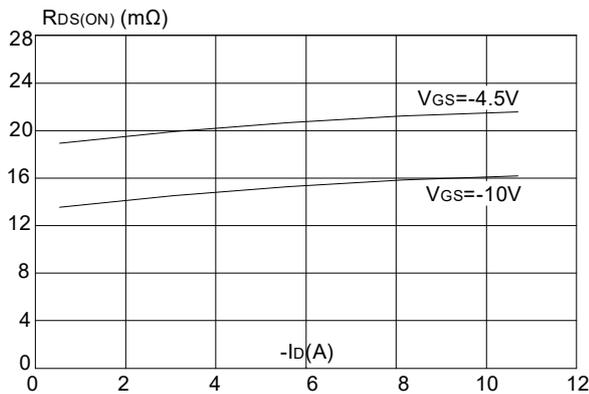
**Figure 1: Output Characteristics**



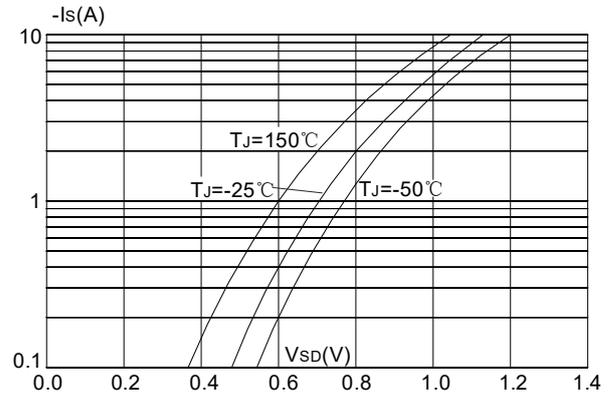
**Figure 2: Typical Transfer Characteristics**



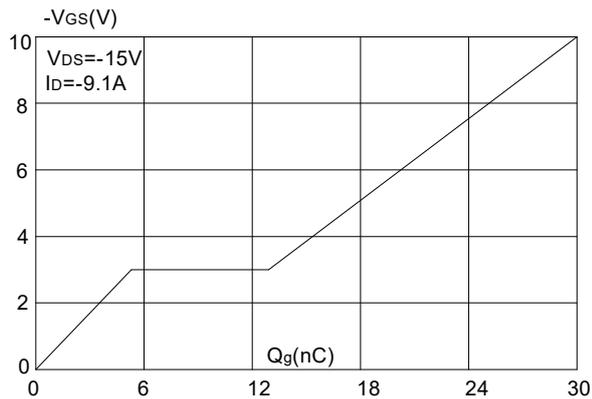
**Figure 3: On-resistance vs. Drain Current**



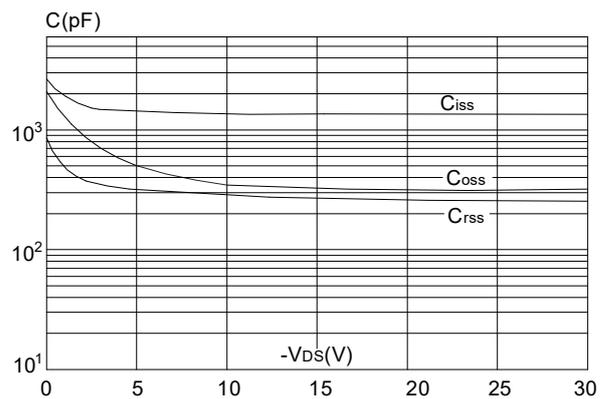
**Figure 4: Body Diode Characteristics**



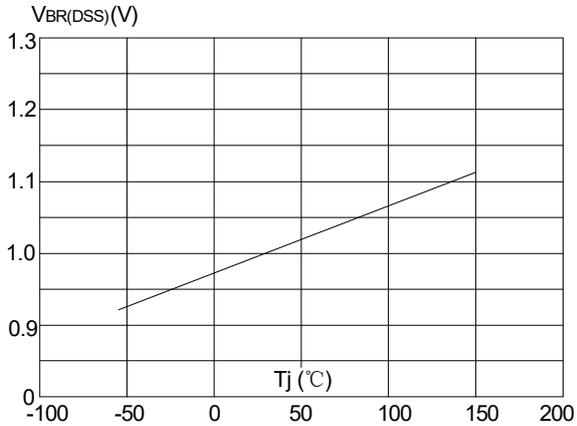
**Figure 5: Gate Charge Characteristics**



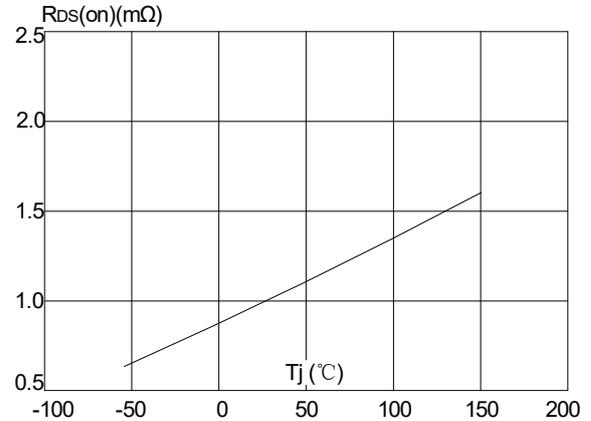
**Figure 6: Capacitance Characteristics**



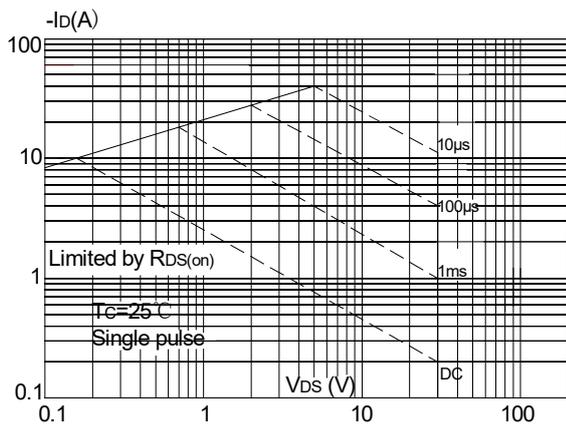
**Figure 7:** Normalized Breakdown Voltage vs. Junction Temperature



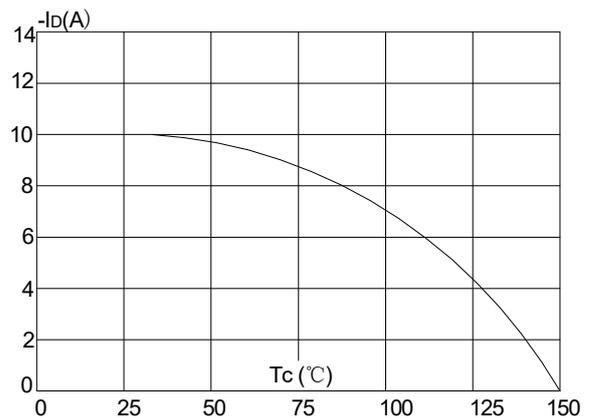
**Figure 8:** Normalized on Resistance vs. Junction Temperature



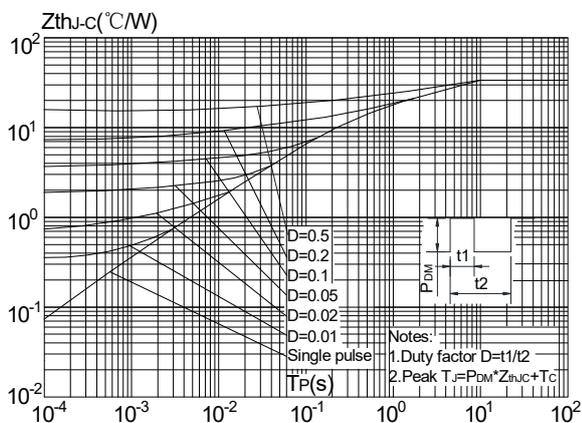
**Figure 9:** Maximum Safe Operating Area



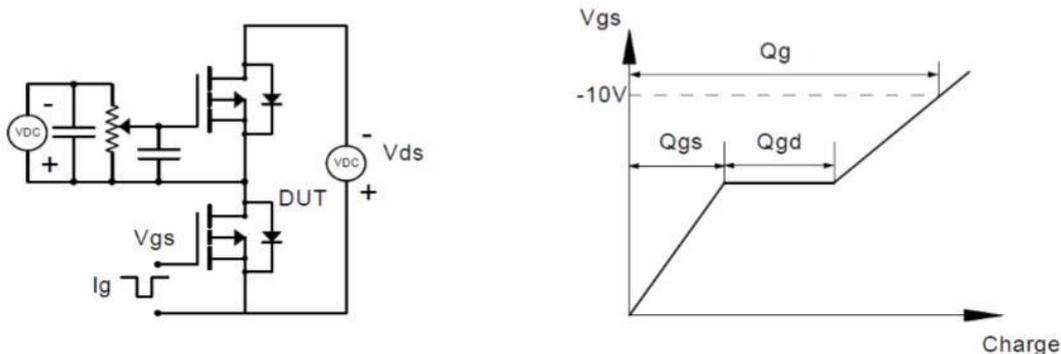
**Figure 10:** Maximum Continuous Drain Current vs. Case Temperature



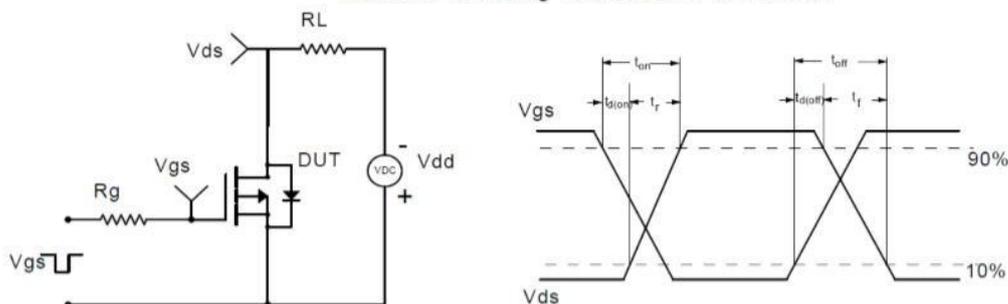
**Figure.11:** Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



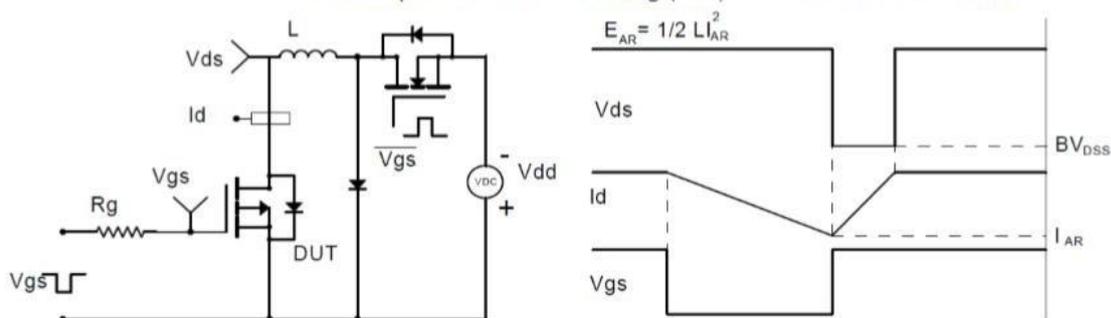
Gate Charge Test Circuit & Waveform



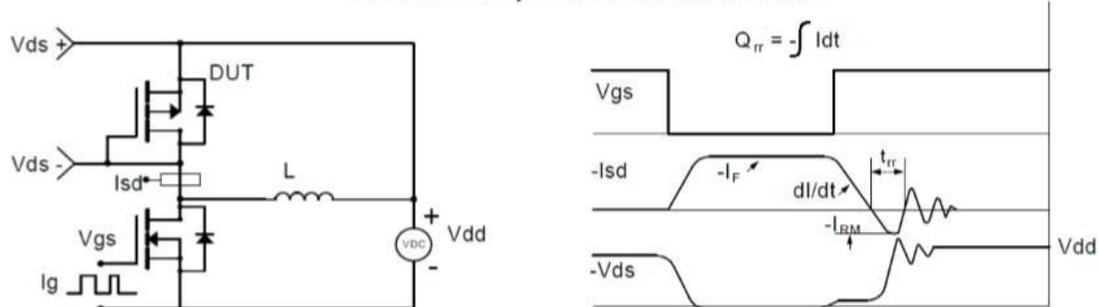
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

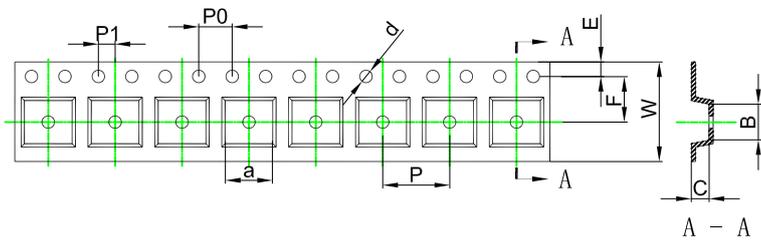


Diode Recovery Test Circuit & Waveforms



## SOP8 Tape and Reel Information

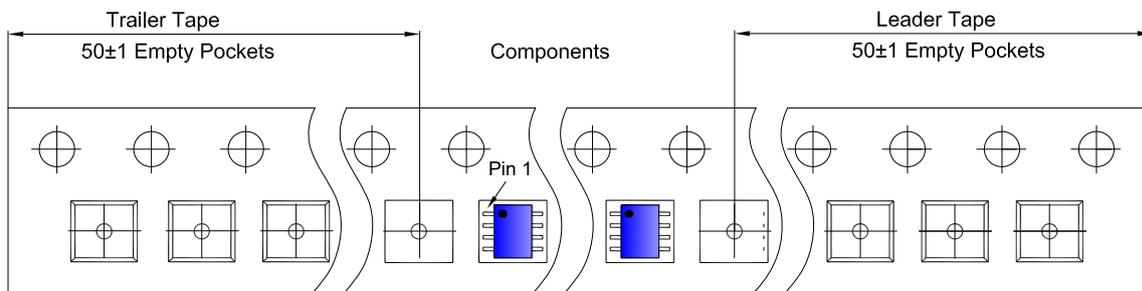
### Embossed Carrier Tape



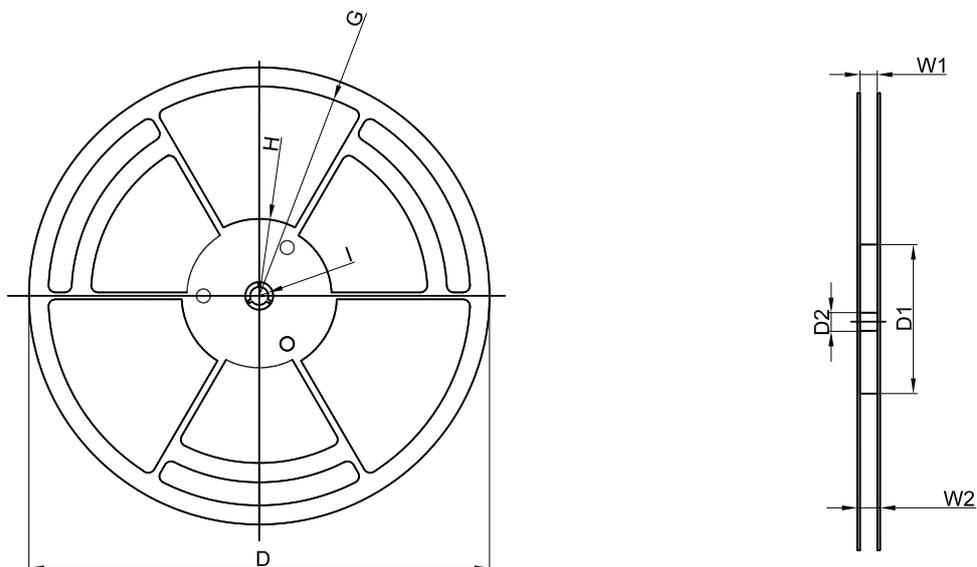
Dimensions are in millimeter

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

### Tape Leader and Trailer



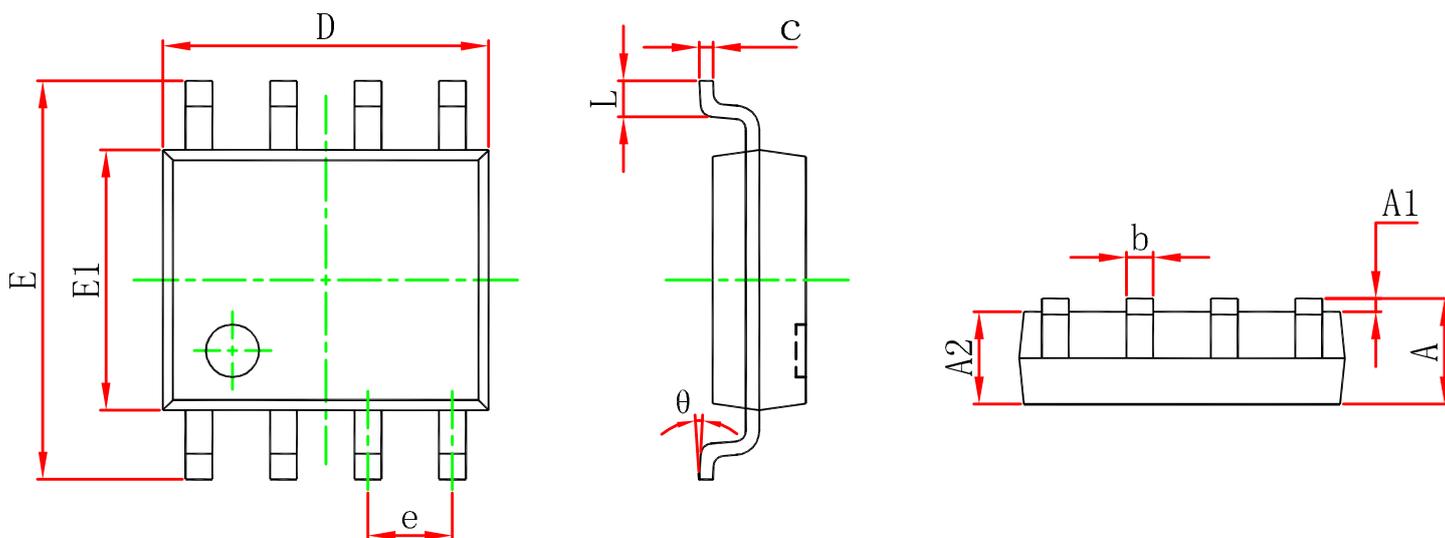
### Reel



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)
3,000 pcs	13 inch	6,000 pcs	360×360×65	48,000 pcs	565×380×390	



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
θ	0°	8°	0°	8°

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