

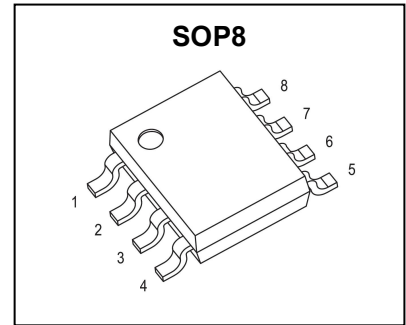


SOP8 Plastic-Encapsulate MOSFET

CJQ075SD10M6 Dual N-Channel MOSFET

Key Performance Parameters

V_{BR(DSS)}	R_{DS(on)}TYP	I_D
100V	48mΩ@10V	3.5A
	57mΩ@4.5V	



DESCRIPTION

The Dual N-Channel MOSFET uses SGT technology to provide excellent RDS(ON) and low gate charge. This device is suitable for use as a load switch or in PWM applications.

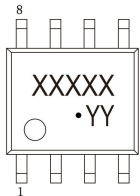
FEATURES

- Battery switch
- Load switch

APPLICATIONS

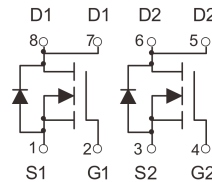
- SMPS and general purpose applications
- Hard switched and high frequency circuits
- Uninterruptible Power Supply

MARKING



XXXXX = 075SD10M6
 Solid dot = Green molding compound device.
 YY = Code.

EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS (T_J=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D ^⑥	T _A =25°C	3.5
		T _A =75°C	2.8
Pulsed Drain Current	I _{DM} ^{①②}	14	A
Avalanche Current	I _{AS} ^③	5	A
Single Pulsed Avalanche Energy	E _{AS} ^③	6.25	mJ
Power Dissipation	P _D ^{①⑥}	1.8	W
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55~+150	°C

Thermal Characteristics

Parameter	Symbol	Value		Unit
		Typ	Max	
Thermal Resistance from Junction to Ambient	R _{θJA} ^⑥	t ≤10s	70	°C/W
		Steady State	112	°C/W

Typical Characteristics

ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Static Characteristics

Parameter	Symbol	Test Condition	Value			Unit	
			Min	Typ	Max		
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	100	-	-	V	
Zero gate voltage drain current	I _{DSS}	V _{DS} =100V, V _{GS} =0V	T _J =25°C	-	-	1.0	μA
			T _J =125°C	-	-	100	
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA	
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	3.0	V	
Static drain-source on-state resistance	R _{DS(on)} ^④	V _{GS} =10V, I _D =3A	T _J =25°C	-	48	75	mΩ
			T _J =125°C	-	82	128	
		V _{GS} =4.5V, I _D =3A	-	57	90		

Dynamic Characteristics^⑤

Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =50V, f=1MHz	-	320	-	pF
Output capacitance	C _{oss}		-	60	-	
Reverse transfer capacitance	C _{rss}		-	4	-	
Total gate charge	Q _g	V _{GS} =4.5V, V _{DS} =50V, I _D =3A	-	3.4	-	nC
Total gate charge	Q _g	V _{GS} =10V, V _{DS} =50V, I _D =3A	-	6.3	-	nC
Gate charge at threshold	Q _{G(th)}		-	0.7	-	
Gate-source charge	Q _{gs}		-	0.9	-	
Gate-drain charge	Q _{gd}		-	1.6	-	
Turn-on delay time	t _{d(on)}	V _{DD} =50V, V _{GS} =10V, R _L =16.7Ω, R _g =6Ω	-	1.7	-	ns
Turn-on rise time	t _r		-	9.7	-	
Turn-off delay time	t _{d(off)}		-	25.2	-	
Turn-off fall time	t _f		-	67.9	-	

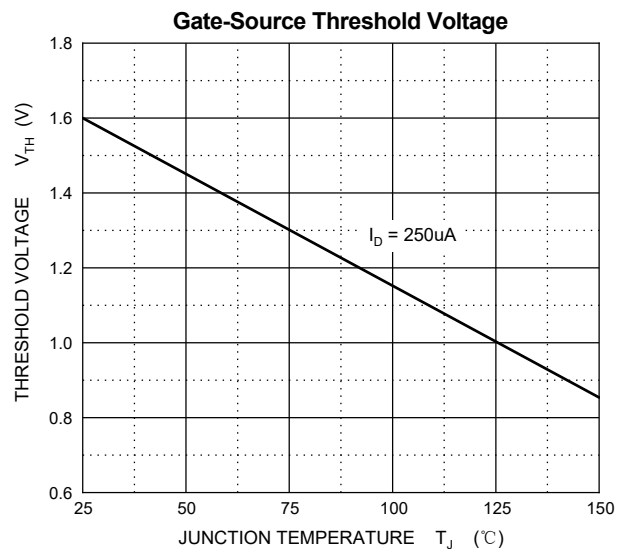
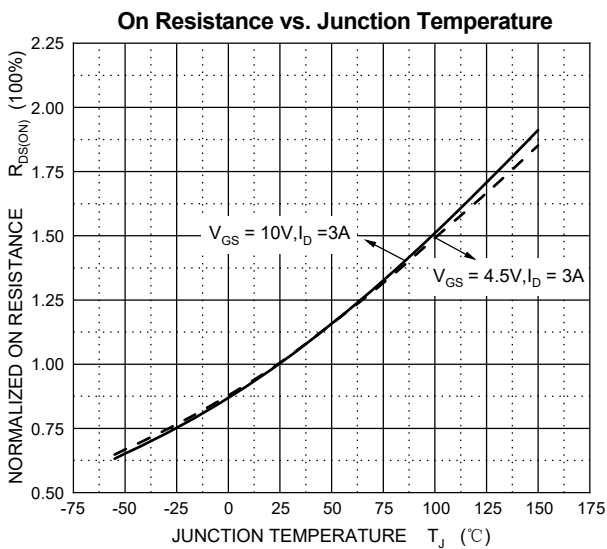
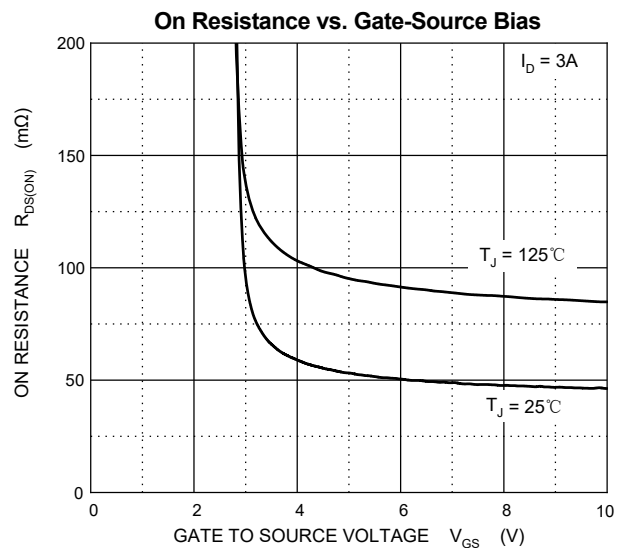
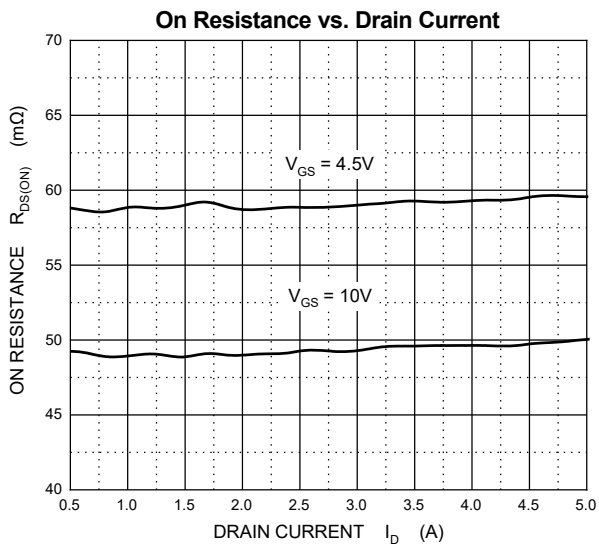
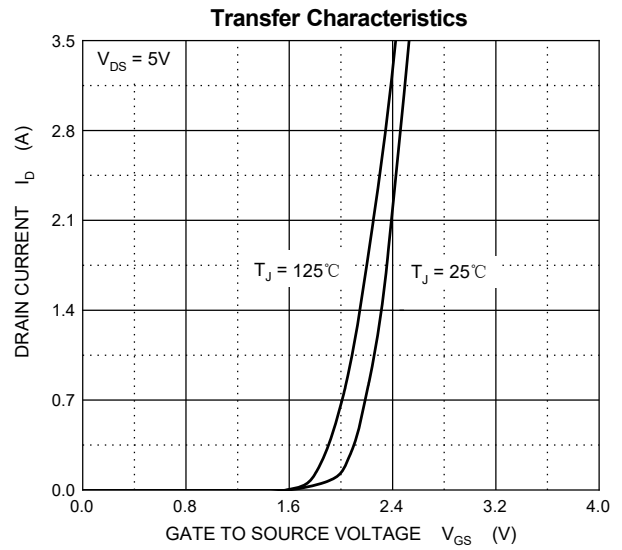
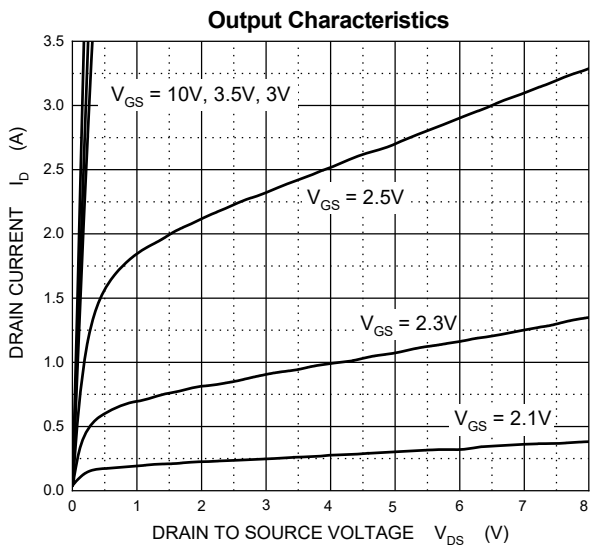
Reverse Diode Characteristics

Drain-source diode forward voltage	V _{SD} ^④	V _{GS} =0V, I _S =3A	-	-	1.2	V
Continuous drain-source diode forward current	I _S ^①		-	-	3.5	A
Pulsed drain-source diode forward current	I _{SM} ^{①②}		-	-	14	A
Reverse recovery time	t _{rr}	V _{DD} =20V, I _S =3A, di/dt=100A/μs	-	37	-	ns
Reverse recovery charge	Q _{rr}		-	16	-	nC

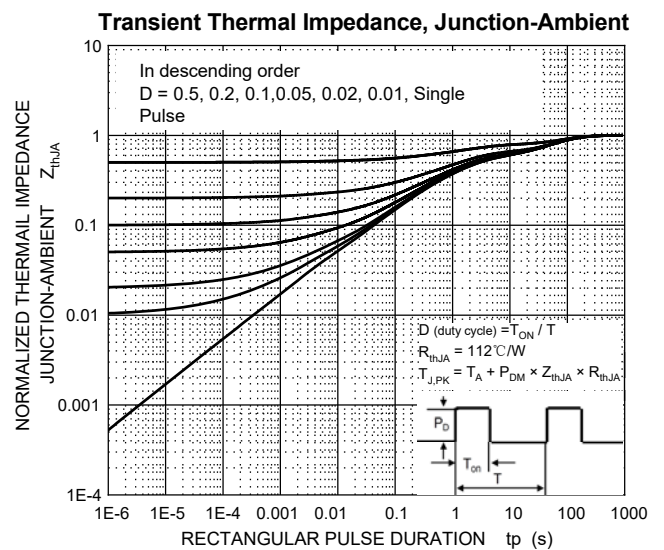
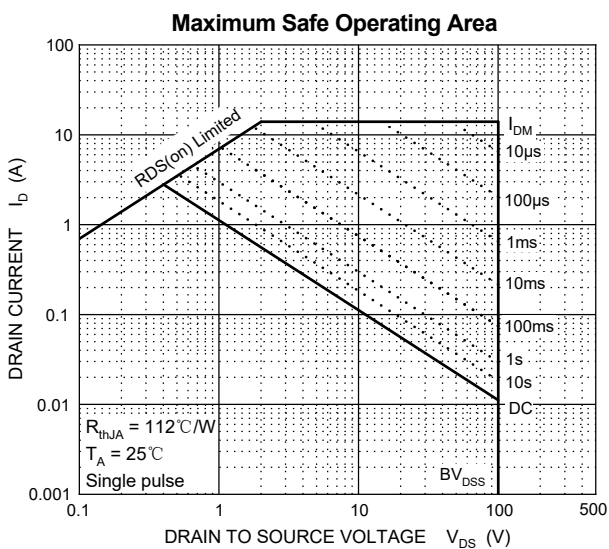
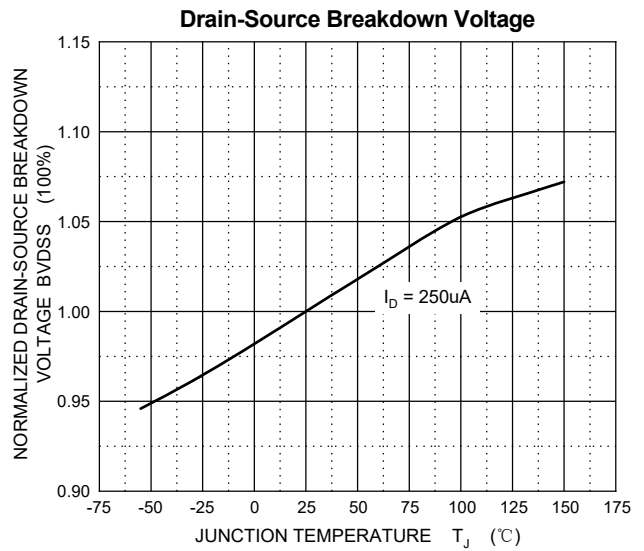
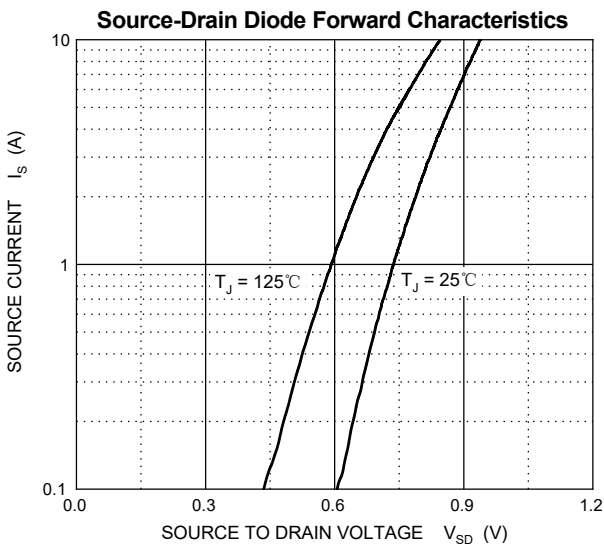
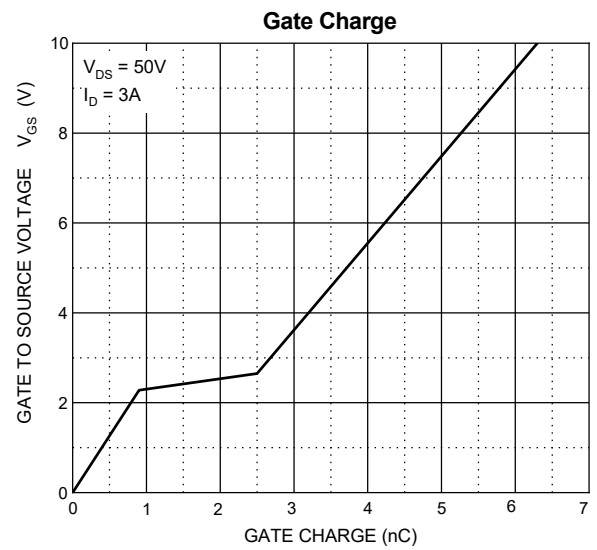
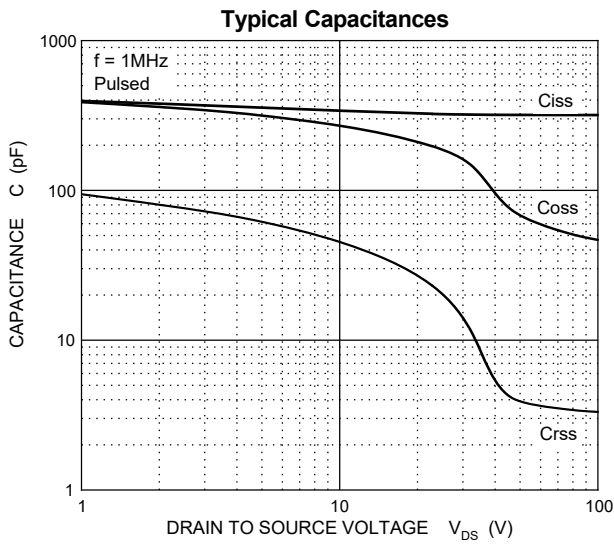
Notes:

- ①.Limited only by maximum temperature allowed.
- ②.P_W ≤10μs, Duty cycle ≤1%.
- ③.EAS condition: V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_g=25Ω Starting T_J=25°C.
- ④.Pulse Test : Pulse Width ≤380μs, duty cycle ≤2%.
- ⑤.Guaranteed by design, not subject to production.
- ⑥.Device mounted on 1 in² FR-4 board with 2oz. double-sided Copper, in a still air environment with T_A=25°C. The current rating is based on the t ≤10s thermal resistance rating.

Typical Characteristics

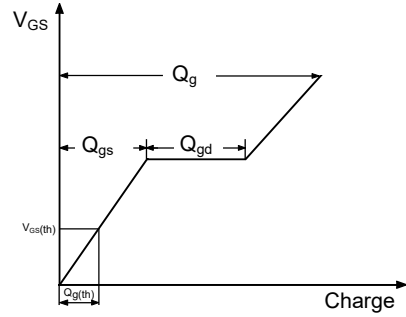
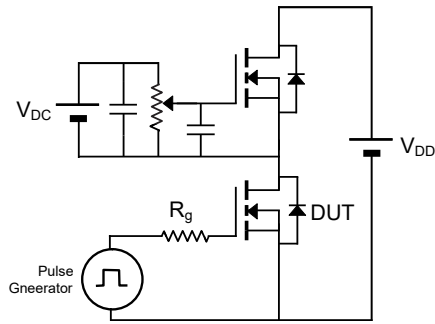


Typical Characteristics

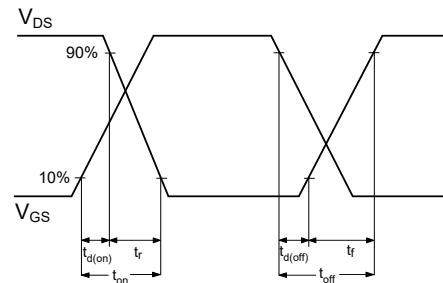
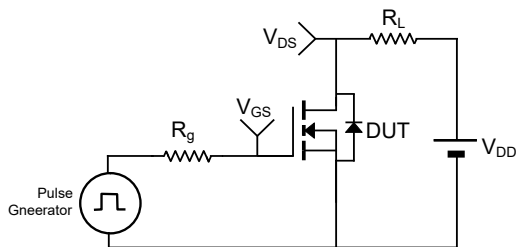


Test Circuit And Waveforms

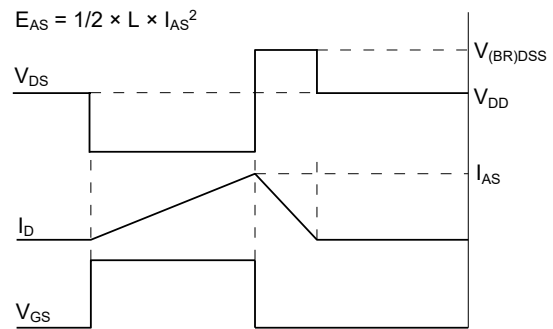
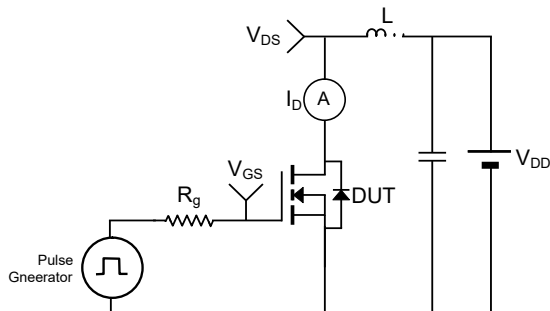
Gate Charge



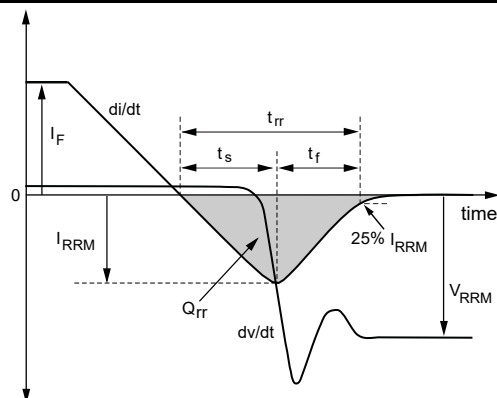
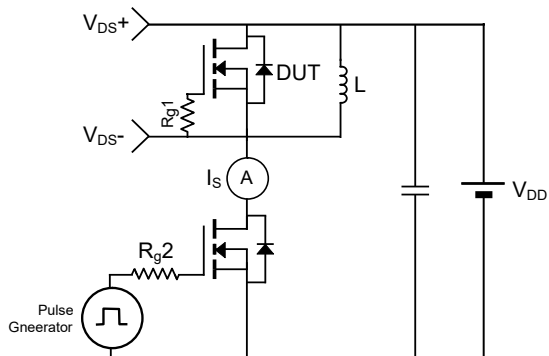
Resistive Load Switching Time



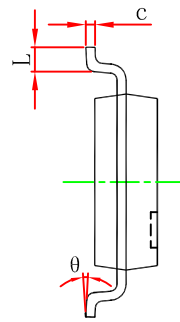
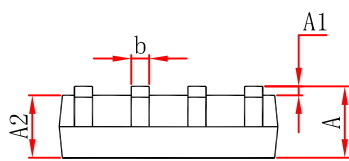
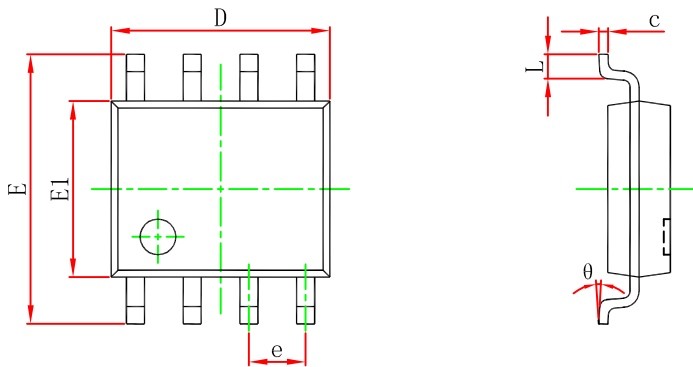
Un-clamped Inductive Load Switching



Drain-Source Body Diode Reverse Recovery

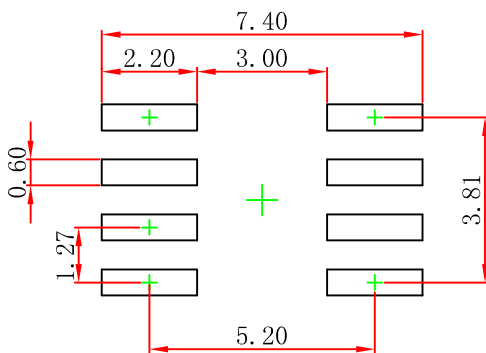


SOP8 Package Outline Dimensions



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
θ	0°	8°	0°	8°

SOP8 Suggested Pad Layout



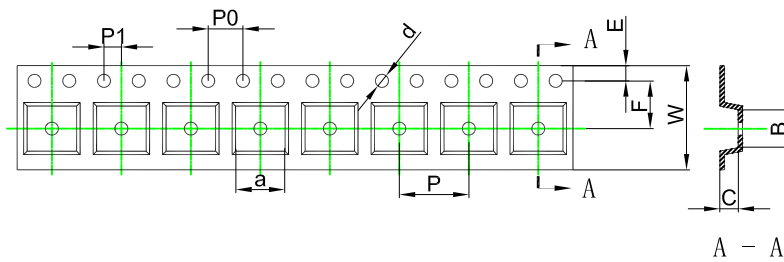
- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.

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



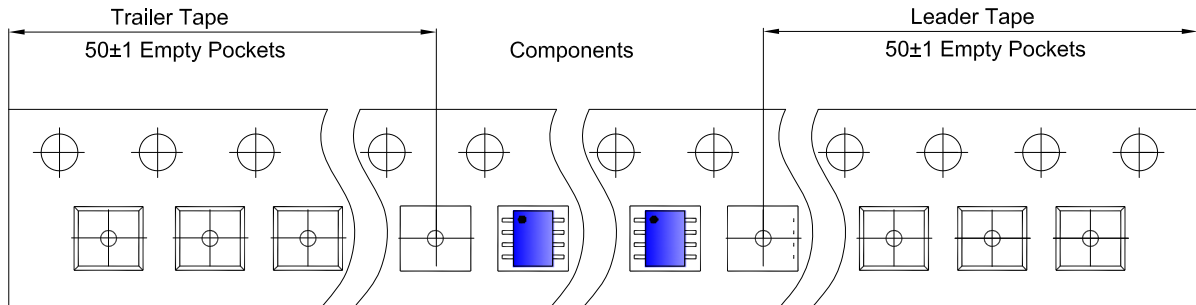
Packaging Description:

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).

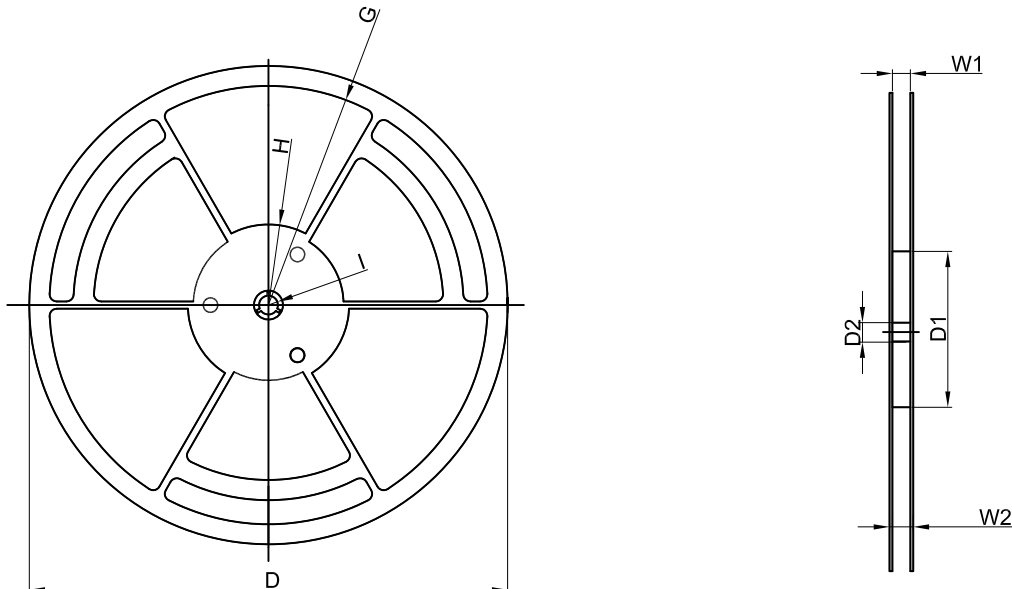
ALL DIM IN mm

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	