

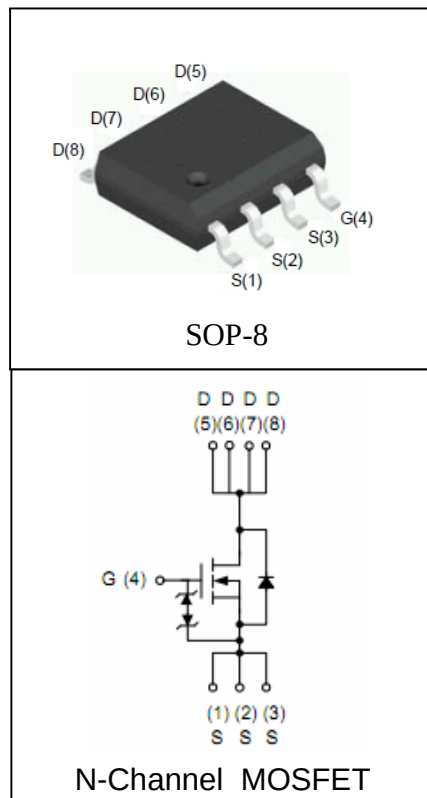
Features

- 20V/8.8A,
 $R_{DS(ON)} = 12m\Omega$ (Typ.) @ $V_{GS}=10V$
 $R_{DS(ON)} = 15m\Omega$ (Typ.) @ $V_{GS}=4.5V$
 $R_{DS(ON)} = 21m\Omega$ (Typ.) @ $V_{GS}=2.5V$
- Super High Dense Cell Design
- Reliable and Rugged
- ESD Protected
- Lead Free and Green Available

Applications

- Power Management
- Converters

Pin Description



Absolute Maximum Ratings

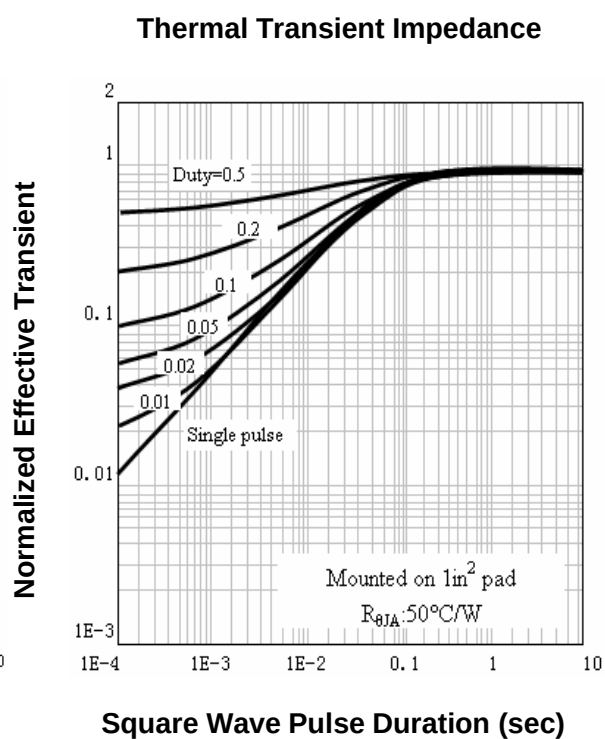
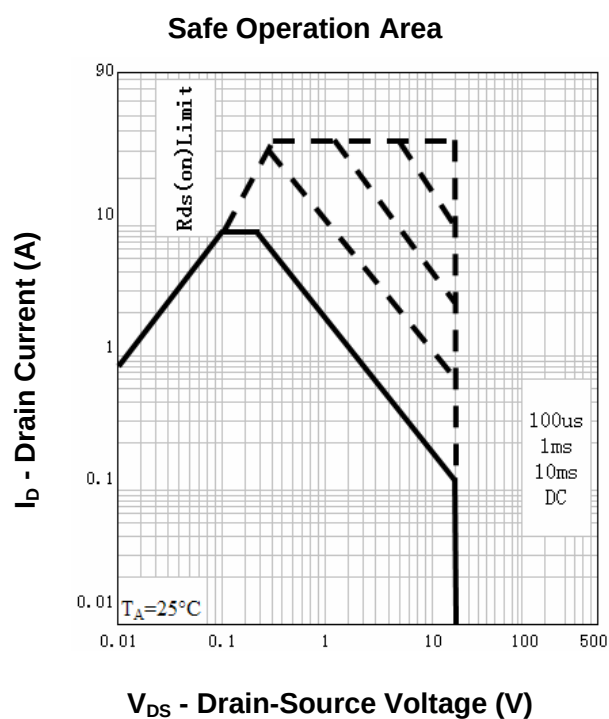
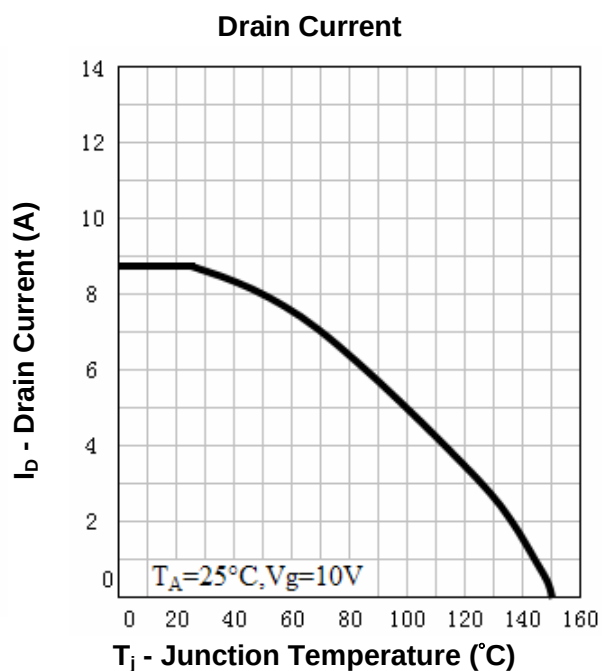
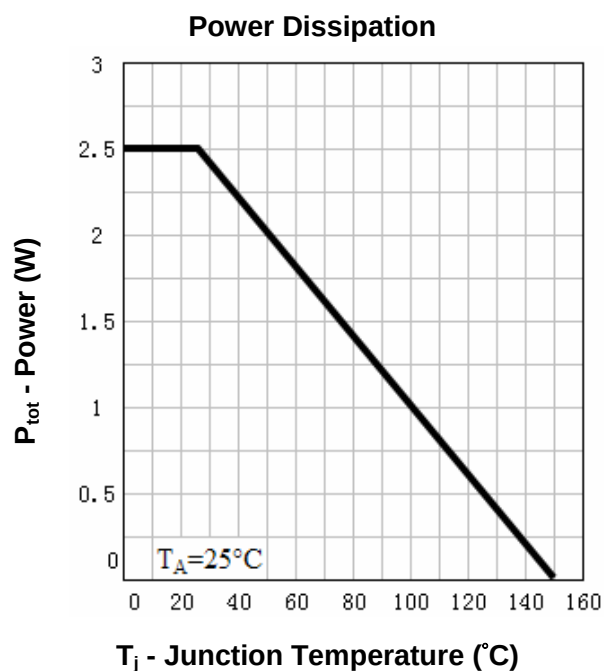
Symbol	Parameter		Rating	Unit
Common Ratings (T _A =25°C Unless Otherwise Noted)				
V _{DSS}	Drain-Source Voltage		20	V
V _{GSS}	Gate-Source Voltage		±12	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	°C
I _S	Diode Continuous Forward Current	T _A =25°C	3	A
Mounted on Large Heat Sink				
I _{DP}	300μs Pulse Drain Current Tested	T _A =25°C	34 ^①	A
I _D	Continuous Drain Current(V _{GS} =10V)	T _A =25°C	8.8	A
		T _A =70°C	7	
P _D	Maximum Power Dissipation	T _A =25°C	2.5	W
		T _A =70°C	1.6	
R _{θJA} ^②	Thermal Resistance-Junction to Ambient		50	°C/W

Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Condition	RU20E8H			Unit
			Min.	Typ.	Max.	
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 20V, V _{GS} =0V			1	μA
		T _J =85°C			30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	0.5	0.8	1.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±12V, V _{DS} =0V			±10	μA
R _{DS(ON)} ^③	Drain-Source On-state Resistance	V _{GS} = 10V, I _{DS} =8A		12	16	mΩ
		V _{GS} = 4.5V, I _{DS} =5A		15	20	mΩ
		V _{GS} = 2.5V, I _{DS} =4A		21	26	mΩ
Diode Characteristics						
V _{SD} ^③	Diode Forward Voltage	I _{SD} =2.5A, V _{GS} =0V			1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} =8A, dI _{SD} /dt=100A/μs		25		ns
Q _{rr}	Reverse Recovery Charge			33		nC
Dynamic Characteristics ^④						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz		1.2		Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} = 10V, Frequency=1.0MHz		650		pF
C _{oss}	Output Capacitance			65		
C _{rss}	Reverse Transfer Capacitance			40		
t _{d(ON)}	Turn-on Delay Time	V _{DD} =10V, R _L =1.3Ω, I _{DS} =8A, V _{GEN} = 10V, R _G =6Ω		3		ns
t _r	Turn-on Rise Time			5		
t _{d(OFF)}	Turn-off Delay Time			21		
t _f	Turn-off Fall Time			6		
Gate Charge Characteristics ^④						
Q _g	Total Gate Charge	V _{DS} =16V, V _{GS} =4.5V, I _{DS} =8A		15	21	nC
Q _{gs}	Gate-Source Charge			2		
Q _{gd}	Gate-Drain Charge			5		

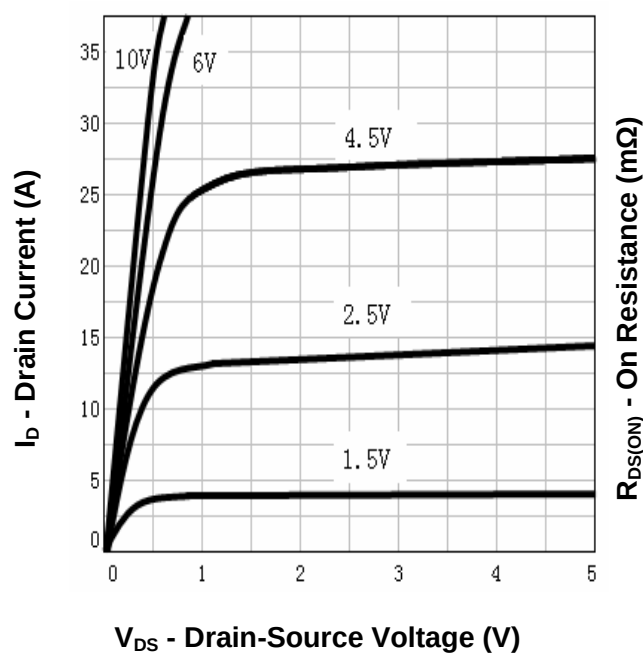
- Notes: ① Pulse width limited by safe operating area.
 ② When mounted on 1 inch square copper board, t ≤ 10sec.
 ③ Pulse test ; Pulse width ≤ 300μs, duty cycle ≤ 2%.
 ④ Guaranteed by design, not subject to production testing.

Typical Characteristics

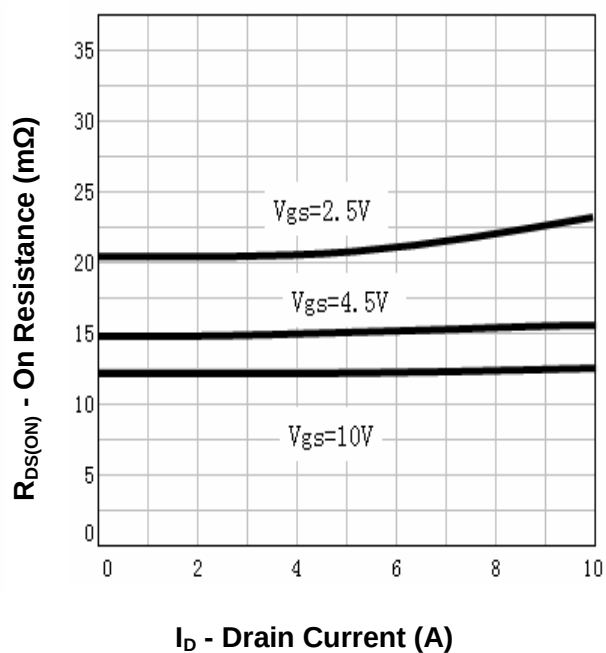


Typical Characteristics

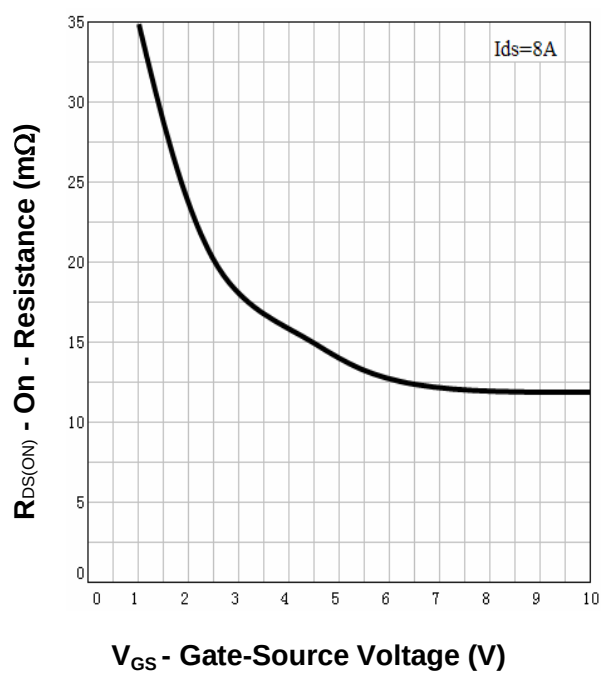
Output Characteristics



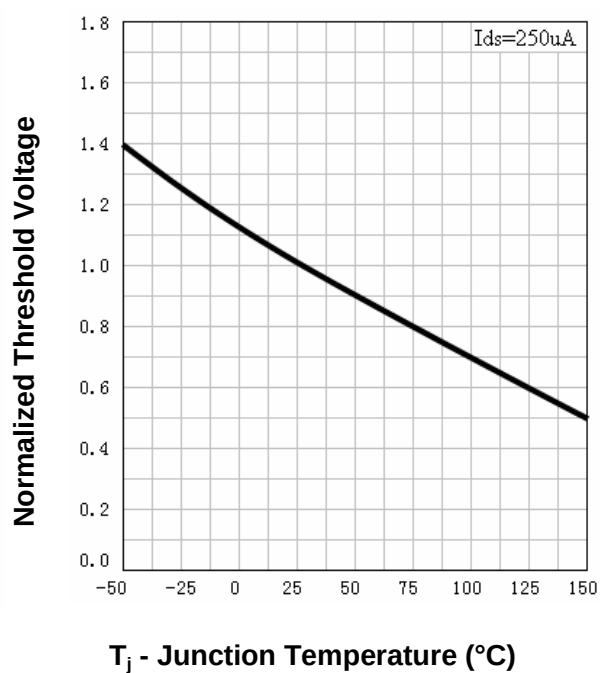
Drain-Source On Resistance



Drain-Source On Resistance

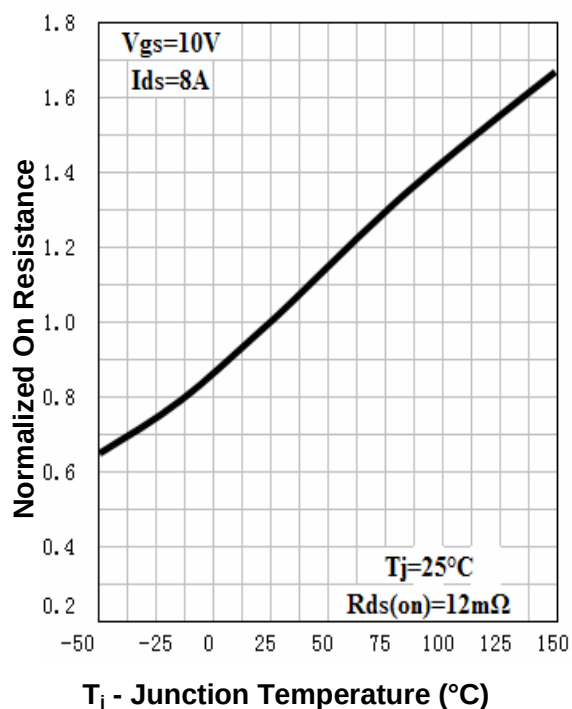


Gate Threshold Voltage

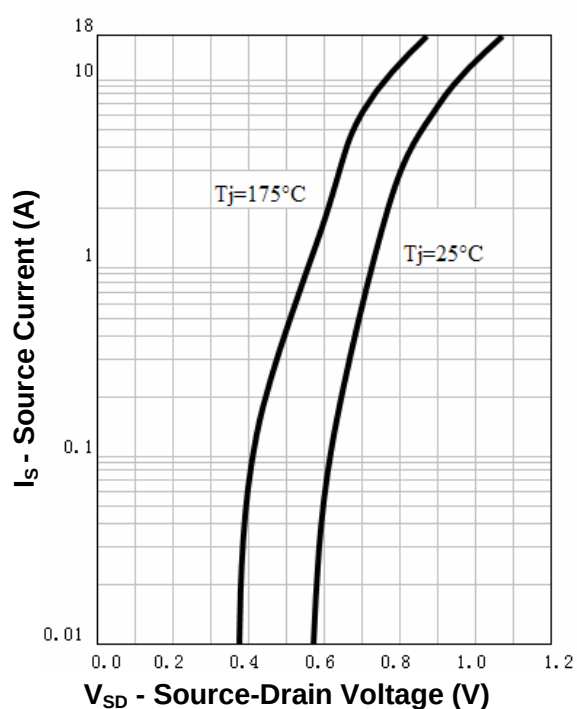


Typical Characteristics

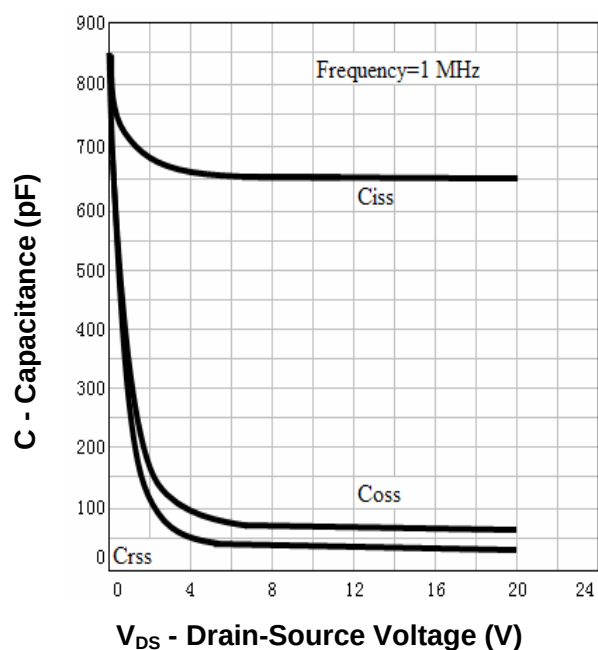
Drain-Source On Resistance



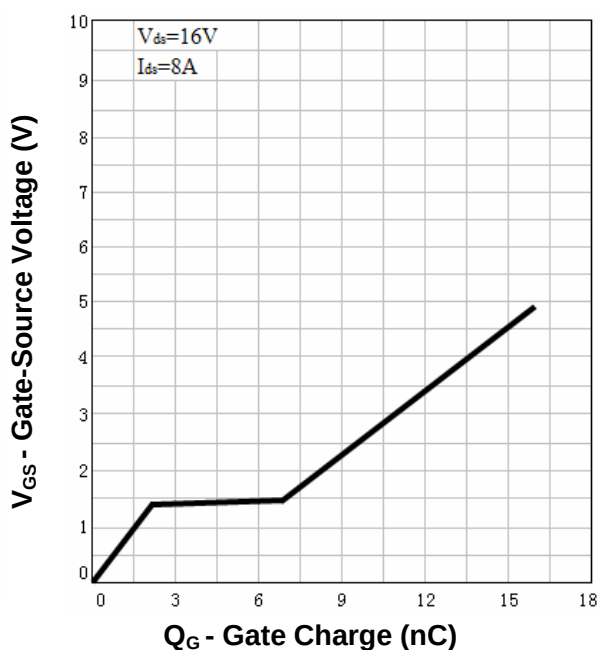
Source-Drain Diode Forward



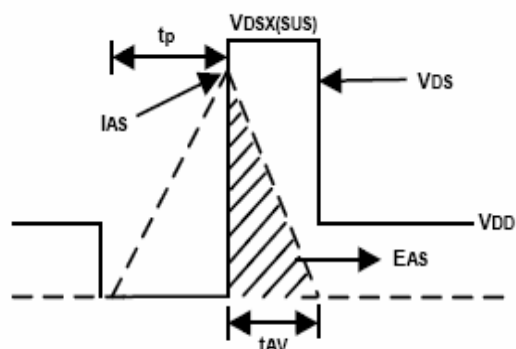
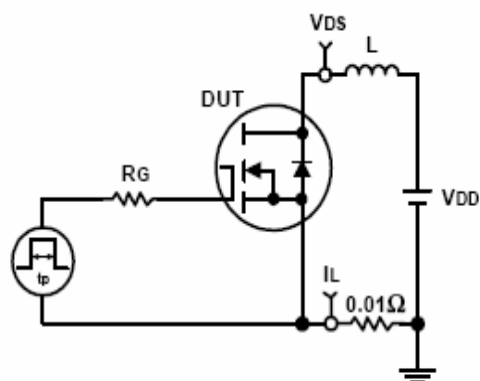
Capacitance



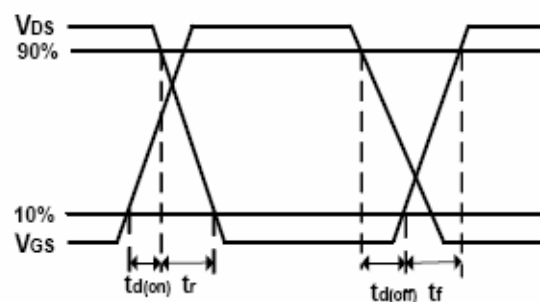
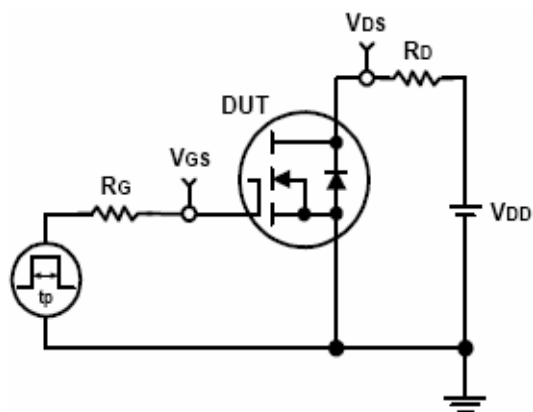
Gate Charge



Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Ordering and Marking Information

RU20E8

Package (Available)

H : SOP-8

Operating Temperature Range

C : -55 to 150 °C

Assembly Material

G : Green & Lead Free

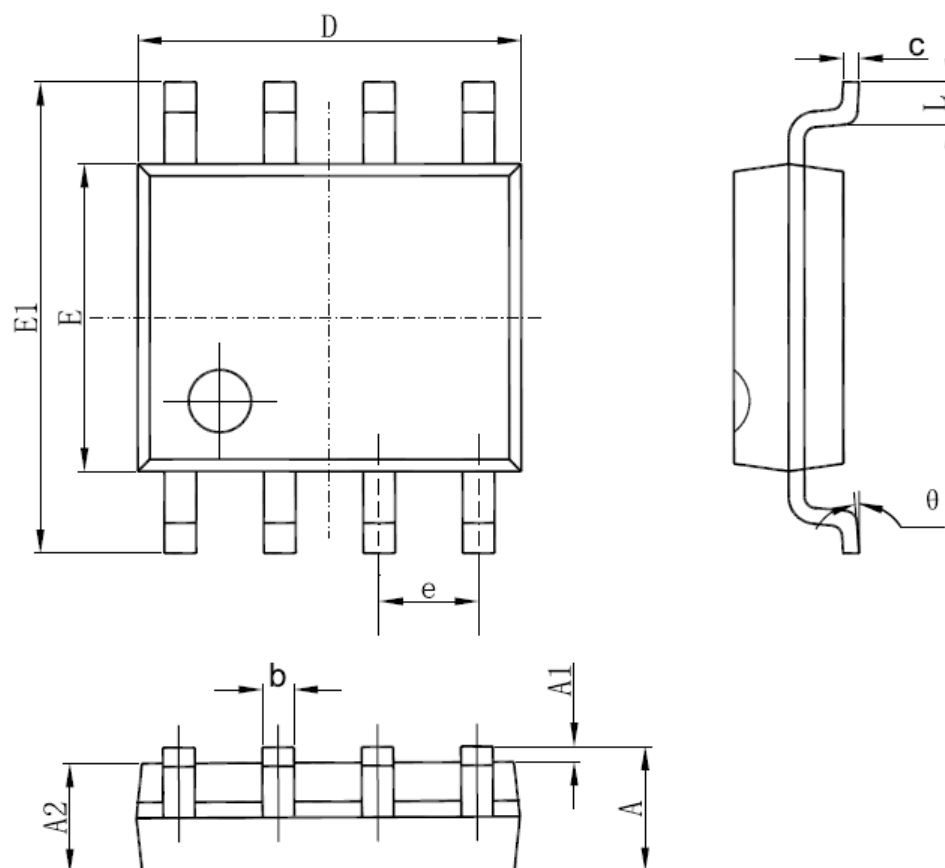
Packaging

T : TUBE

TR : Tape & Reel

Package Information

SOP-8



SYMBOL	MM		INCH		SYMBOL	MM		INCH	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX
A	1.350	1.750	0.053	0.069	E	3.800	4.000	0.150	0.157
A1	0.100	0.250	0.004	0.010	E1	5.800	6.200	0.228	0.244
A2	1.350	1.550	0.053	0.061	e	1.270 (BSC)		0.050 (BSC)	
b	0.330	0.510	0.013	0.020	L	0.400	1.270	0.016	0.050
c	0.170	0.250	0.006	0.010	θ	0°	8°	0°	8°
D	4.700	5.100	0.185	0.200					

ALL DIMENSIONS REFER TO JEDEC STANDARD
DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS

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