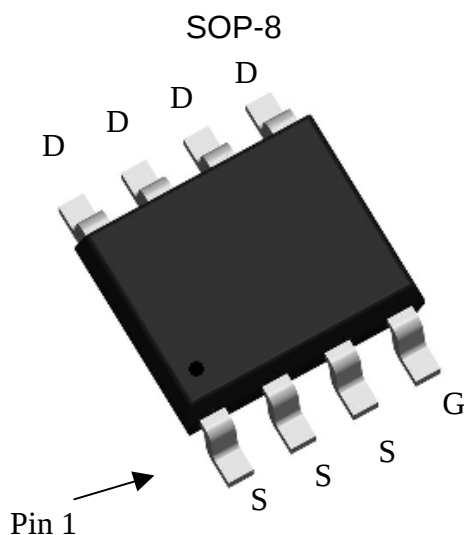


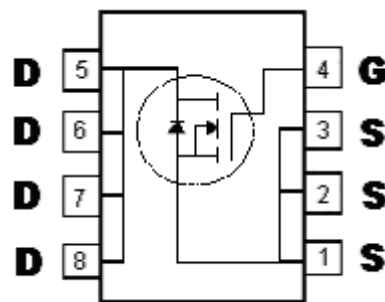
N-Channel Enhancement Mode Power MOSFET

Features:

- Single Drive Requirement
- Low On-resistance
- Fast Switching Characteristic
- Pb-free & Halogen-free package



BV_{DSS}	80V
I_D @ T_A=25°C, V_{GS}=10V	11A
R_{DS(ON)}@V_{GS}=10V, I_D=8.9A	9.3 mΩ (typ)
R_{DS(ON)}@V_{GS}=6V, I_D=5.6A	11.4 mΩ (typ)



G : Gate
D : Drain
S : Source

Ordering Information

Device	Package	Shipping
KSCE013N08	SOP-8 (RoHS compliant & Halogen-free package)	2500 pcs / Tape & Reel

Absolute Maximum Ratings (T_c=25°C, unless otherwise noted)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	80	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current @ T _A =25°C, V _{GS} =10V	I _D	11	A
Continuous Drain Current @ T _A =70°C, V _{GS} =10V		8.8	
Pulsed Drain Current	I _{DM}	62 *1	
Avalanche Current @ L=0.1mH	I _{AS}	29	
Avalanche Energy @ L=1mH, I _D =27A, V _{DD} =30V	E _{AS}	364 *3	mJ
Repetitive Avalanche Energy @ L=0.05mH	E _{AR}	1.6 *2	
Total Power Dissipation	P _D	T _A =25 °C 3.1	W
		T _A =70 °C 2	
Operating Junction and Storage Temperature	T _j , T _{stg}	-55~+150	°C

Note : *1. Pulse width limited by maximum junction temperature

*2. Duty cycle ≤ 1%

*3. 100% tested by conditions of L=0.1mH, I_{AS}=15A, V_{GS}=10V, V_{DD}=30V

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case	R _{θJC}	20	°C/W
Thermal Resistance, Junction-to-ambient (Note)	R _{θJA}	40	

Note : 40°C / W when mounted on a 1 in² pad of 2 oz copper, t≤10s; 125 °C/W when mounted on minimum pad.

Characteristics (T_c=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	80	-	-	V	V _{GS} =0V, I _D =250μA
V _{GS(th)}	2	-	4		V _{DS} = V _{GS} , I _D =250μA
G _{FS}	-	18	-	S	V _{DS} =10V, I _D =20A
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0V
I _{DSS}	-	-	1	μA	V _{DS} =64V, V _{GS} =0V
	-	-	25		V _{DS} =64V, V _{GS} =0V, T _j =125°C
*R _{DS(ON)}	-	9.3	13	mΩ	V _{GS} =10V, I _D =8.9A
	-	11.4	18		V _{GS} =6V, I _D =5.6A
Dynamic					
Q _g *1, 2	-	31.5	47	nC	V _{DS} =40V, V _{GS} =10V, I _D =8.9A
Q _{gs} *1, 2	-	7.1	-		
Q _{gd} *1, 2	-	9.7	-		
C _{iss}	-	1419	-	pF	V _{DS} =40V, V _{GS} =0V, f=1MHz
C _{oss}	-	182	-		
C _{rss}	-	90	-		

Characteristics (Cont. Tc=25°C, unless otherwise specified)

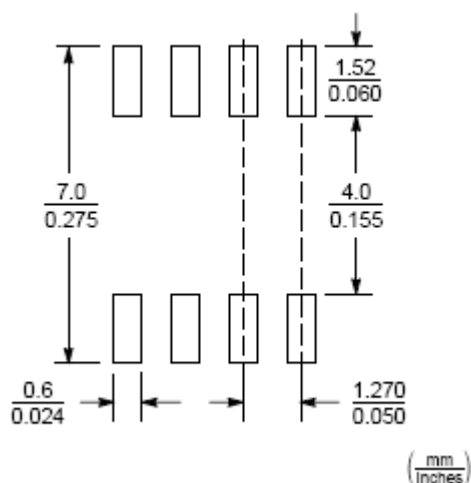
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Dynamic					
t _d (ON) *1, 2	-	17.4	-	ns	V _{DS} =40V, I _D =8.9A, V _{GS} =10V, R _{GS} =1Ω
t _r *1, 2	-	23	-		
t _d (OFF) *1, 2	-	41.4	-		
t _f *1, 2	-	12	-		
R _g	-	3	-	Ω	f=1MHz
Source-Drain Diode Ratings and Characteristics					
I _S *1	-	-	4	A	
I _{SM} *3	-	-	16		
V _{SD} *1	-	0.74	1.0	V	I _S =4.3A, V _{GS} =0V
	-	0.77	1.2		I _S =8.9A, V _{GS} =0V
t _{rr}	-	22.6	-	ns	I _F =8.9A, dI _F /dt=100A/μs
Q _{rr}	-	23.4	-	nC	

Note : *1.Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

*2.Independent of operating temperature

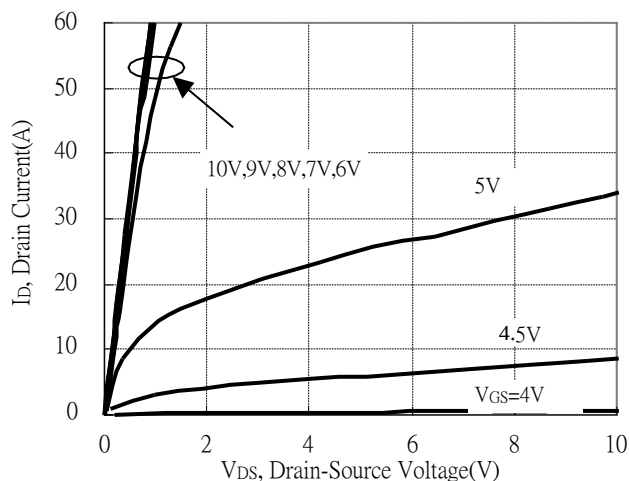
*3.Pulse width limited by maximum junction temperature.

Recommended Soldering Footprint

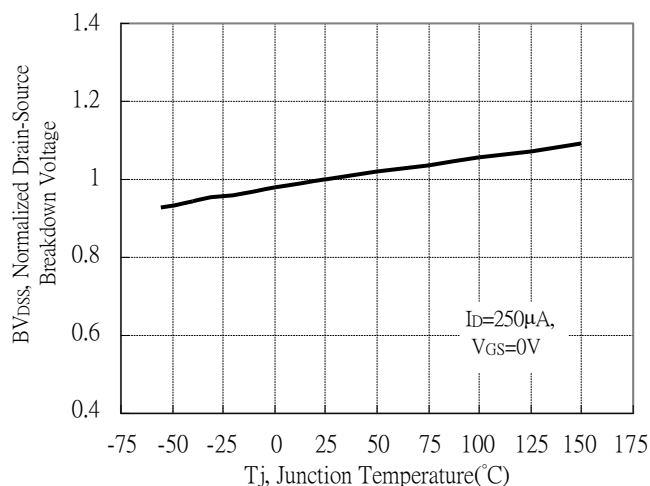


Typical Characteristics

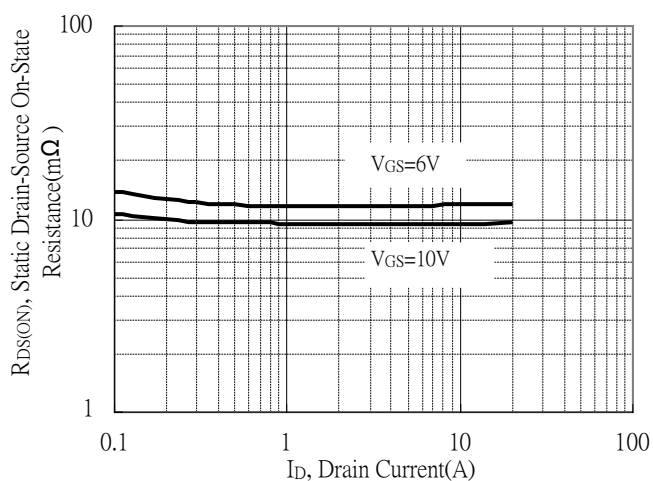
Typical Output Characteristics



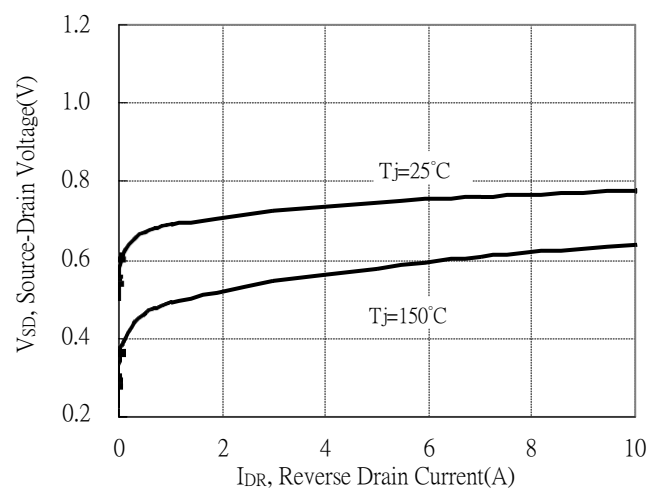
Breakdown Voltage vs Ambient Temperature



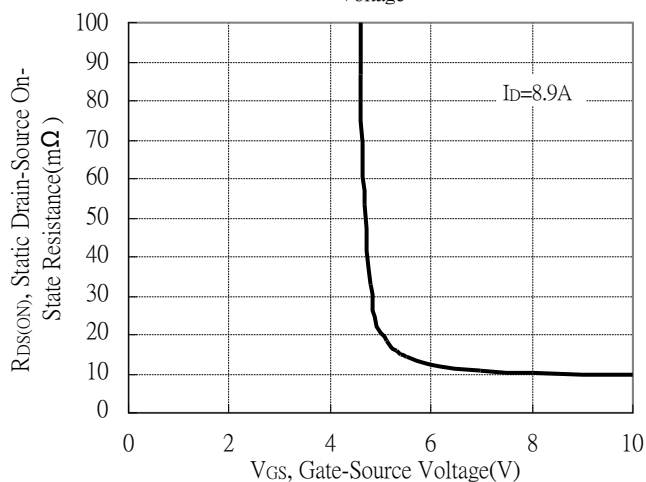
Static Drain-Source On-State resistance vs Drain Current



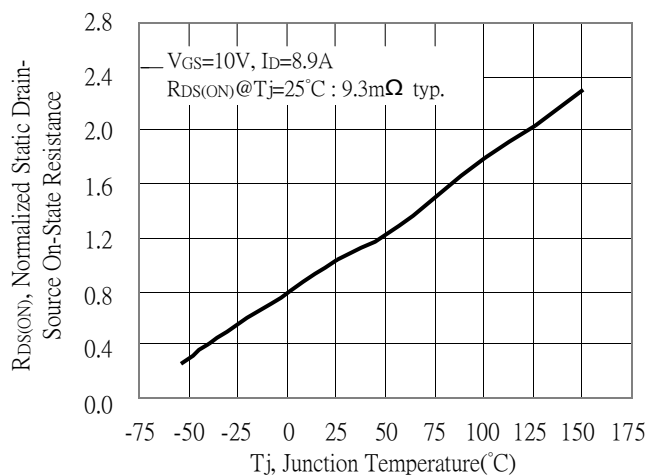
Reverse Drain Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

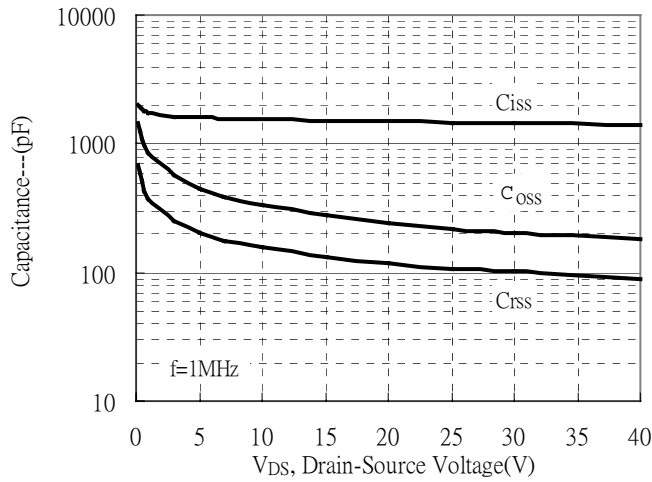


Drain-Source On-State Resistance vs Junction Temperature

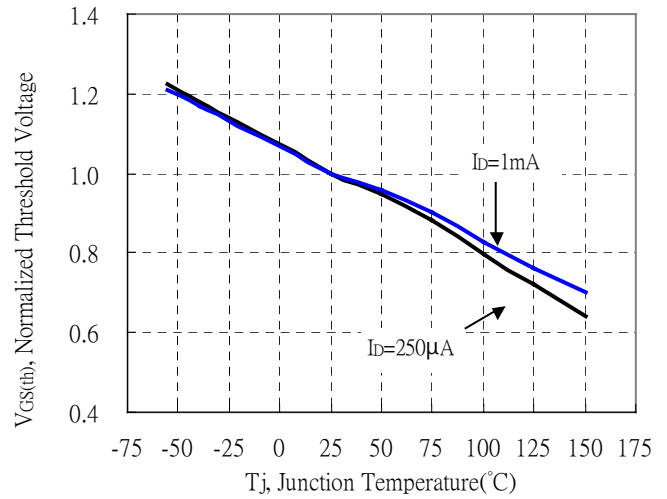


Typical Characteristics(Cont.)

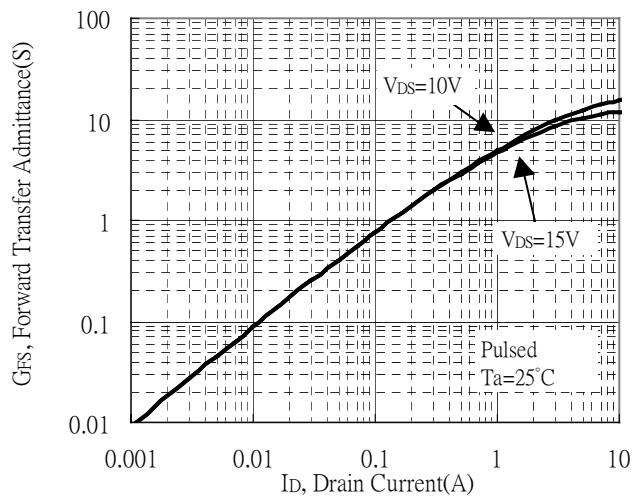
Capacitance vs Drain-to-Source Voltage



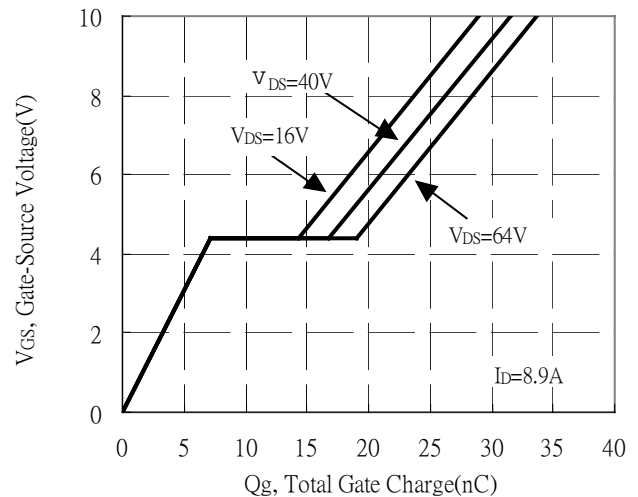
Threshold Voltage vs Junction Temperature



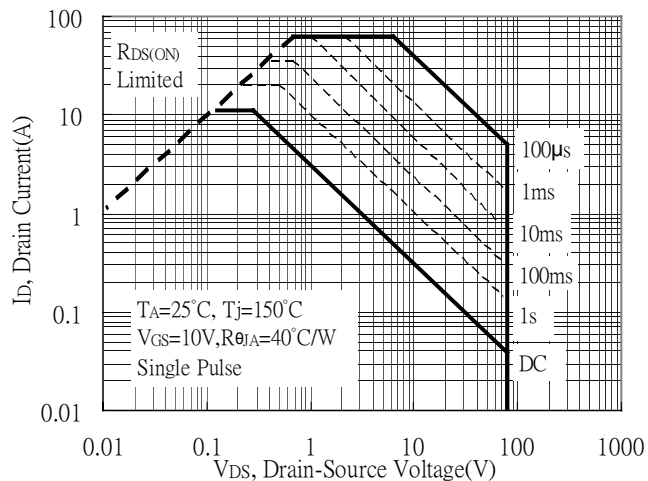
Forward Transfer Admittance vs Drain Current



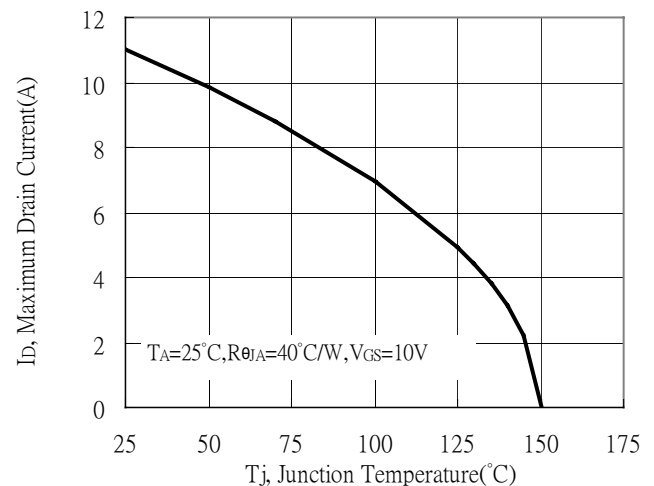
Gate Charge Characteristics



Maximum Safe Operating Area

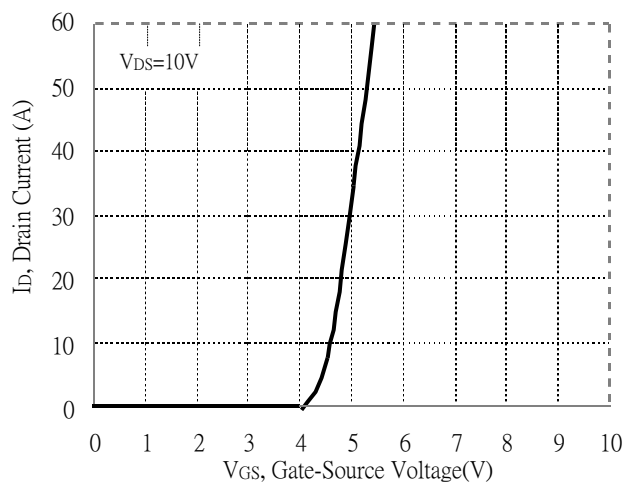


Maximum Drain Current vs Junction Temperature

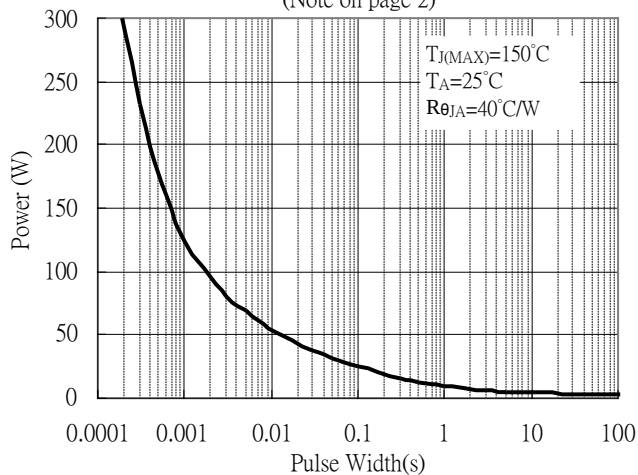


Typical Characteristics(Cont.)

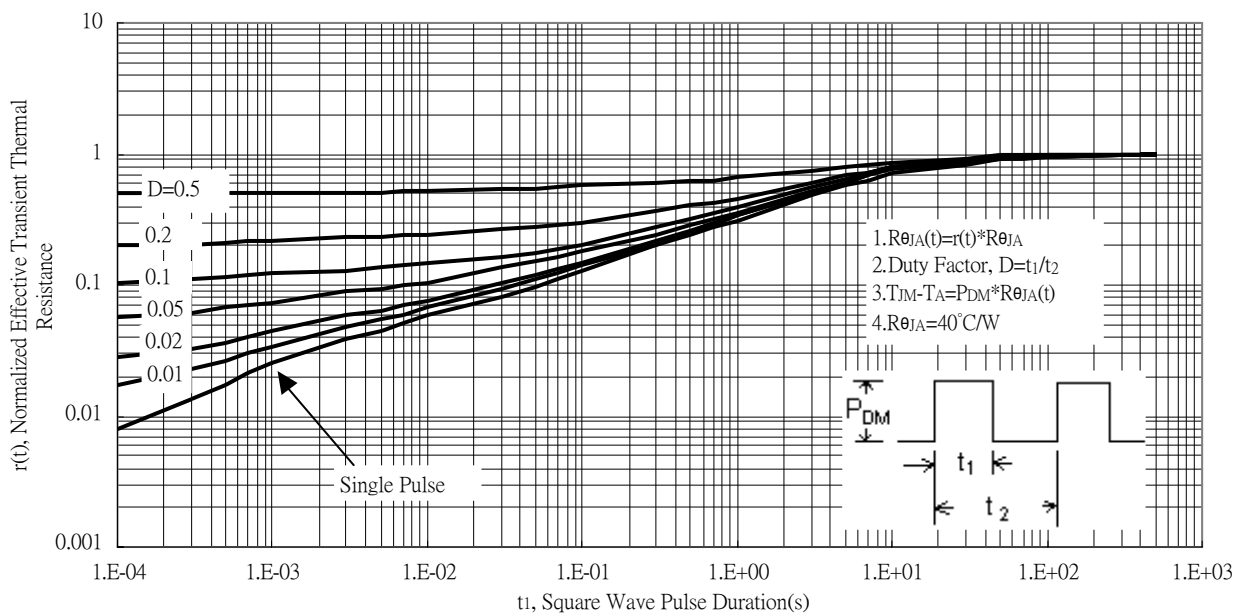
Typical Transfer Characteristics



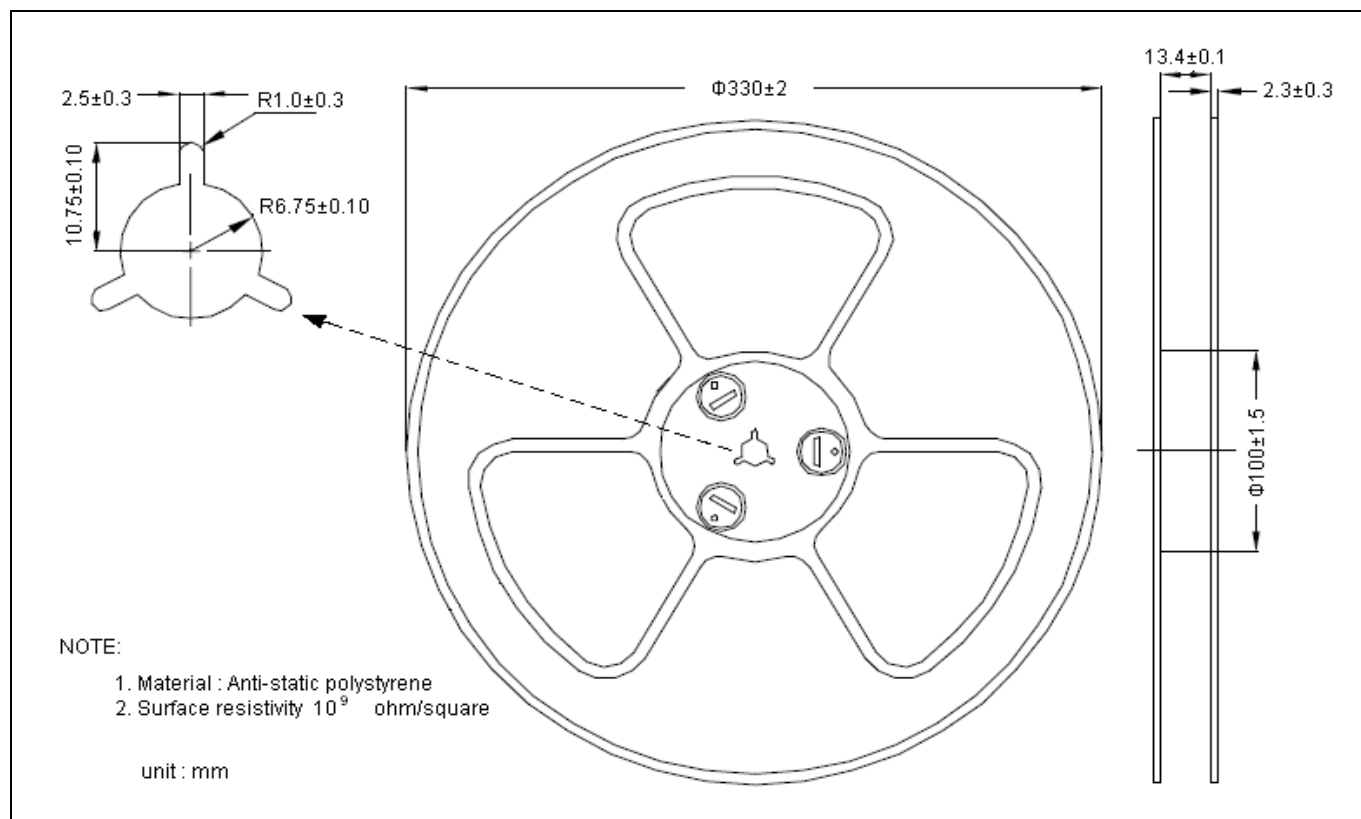
Single Pulse Power Rating, Junction to Ambient
 (Note on page 2)



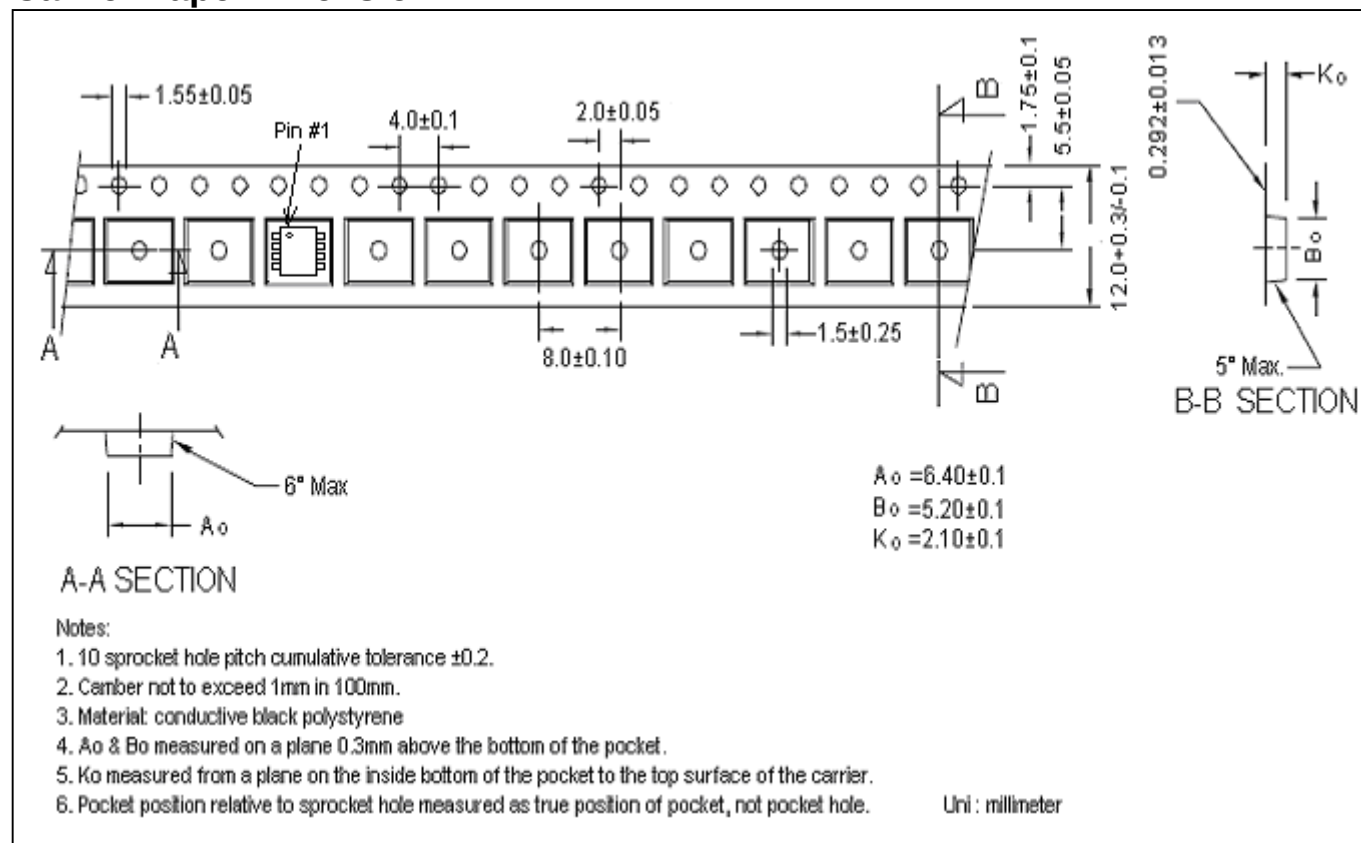
Transient Thermal Response Curves



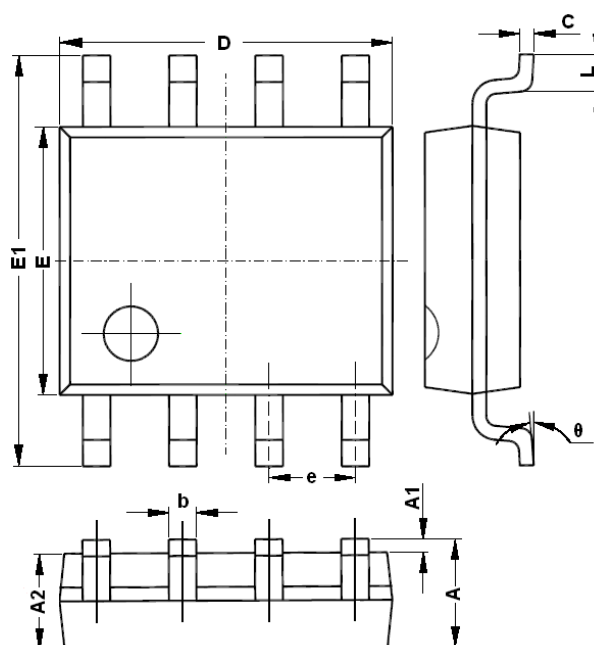
Reel Dimension



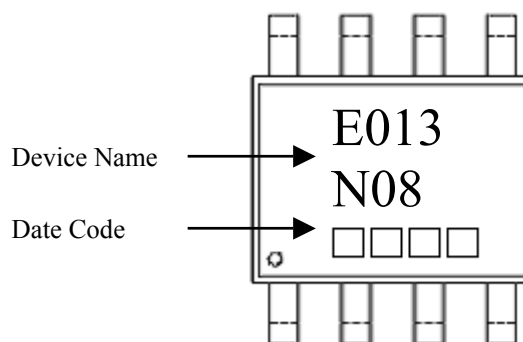
Carrier Tape Dimension



SOP-8 Dimension



Marking:



Date Code(counting from left to right) :

1st code: year code, the last digit of Christian year

2nd code : month code, Jan→A, Feb→B, Mar→C, Apr→D
 May→E, Jun→F, Jul→G, Aug→H, Sep→J,
 Oct→K, Nov→L, Dec→M

3rd and 4th codes : production serial number, 01~99

8-Lead SOP-8 Plastic Package

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	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					