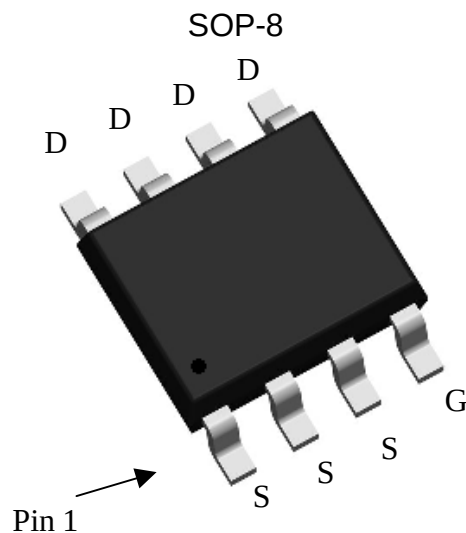


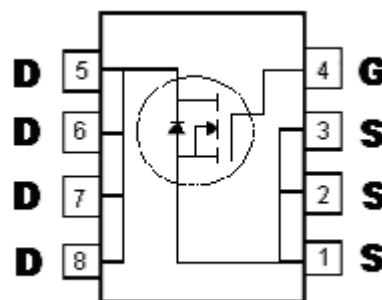
N-Channel Enhancement Mode Power MOSFET

Features:

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



BV_{DSS}	100V
I_D @ T_A=25°C, V_{GS}=10V	12A
I_D @ T_A=70°C, V_{GS}=10V	9.6A
R_{DS(ON)}@V_{GS}=10V, I_D=11.5A	5.6 mΩ (typ)
R_{DS(ON)}@V_{GS}=4.5V, I_D=9.5A	7.3 mΩ (typ)



G : Gate
D : Drain
S : Source

Ordering Information

Device	Package	Shipping
KSCB9D0N10RQ8	SOP-8 (RoHS compliant & Halogen-free package)	2500 pcs / Tape & Reel

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

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	100	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current @ T _A =25°C, V _{GS} =10V	I _D	12	A
Continuous Drain Current @ T _A =70°C, V _{GS} =10V		9.6	
Pulsed Drain Current	I _{DM}	48 *1	
Avalanche Current @ L=0.1mH	I _{AS}	48	
Avalanche Energy @ L=1mH, I _D =30A, V _{DD} =25V	E _{AS}	450 *3	mJ
Repetitive Avalanche Energy @ L=0.05mH	E _{AR}	1.6 *2	
Total Power Dissipation	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=5mH, I_{AS}=11.5A, V_{GS}=10V, V_{DD}=50V

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case	R _{θJC}	18	°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 (Tc=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	100	-	-	V	V _{GS} =0V, I _D =250μA
V _{GS(th)}	1	-	2.5		V _{DS} = V _{GS} , I _D =250μA
G _{FS}	-	19.2	-	S	V _{DS} =10V, I _D =5A
I _{GSS}	-	-	±100	nA	V _{GS} =±20V
I _{DSS}	-	-	1	μA	V _{DS} =80V, V _{GS} =0V
	-	-	25		V _{DS} =80V, V _{GS} =0V, T _j =125°C
*R _{DS(ON)}	-	5.6	8	mΩ	V _{GS} =10V, I _D =11.5A
	-	7.3	11		V _{GS} =4.5V, I _D =9.5A
Dynamic					
Q _g *1, 2	-	79.6	-	nC	V _{DS} =80V, V _{GS} =10V, I _D =11.5A
Q _{gs} *1, 2	-	10.3	-		
Q _{gd} *1, 2	-	18.7	-		
C _{iss}	-	3890	-	pF	V _{DS} =50V, V _{GS} =0V, f=1MHz
C _{oss}	-	265	-		
C _{rss}	-	17	-		

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

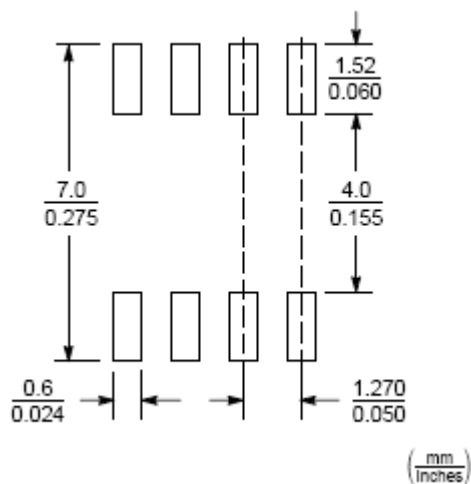
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Dynamic					
t _{d(ON)} *1, 2	-	22	-	ns	V _{DS} =50V, I _D =11.5A, V _{GS} =10V, R _{GS} =1Ω
t _r *1, 2	-	25.2	-		
t _{d(OFF)} *1, 2	-	82	-		
t _f *1, 2	-	13.4	-		
Source-Drain Diode Ratings and Characteristics					
I _S *1	-	-	12	A	
I _{SM} *3	-	-	48		
V _{SD} *1	-	0.7	1	V	I _S =1A, V _{GS} =0V
t _{rr}	-	42	-	ns	I _F =12A, dI _F /dt=100A/μs
Q _{rr}	-	48	-	nC	

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

*2.Independent of operating temperature

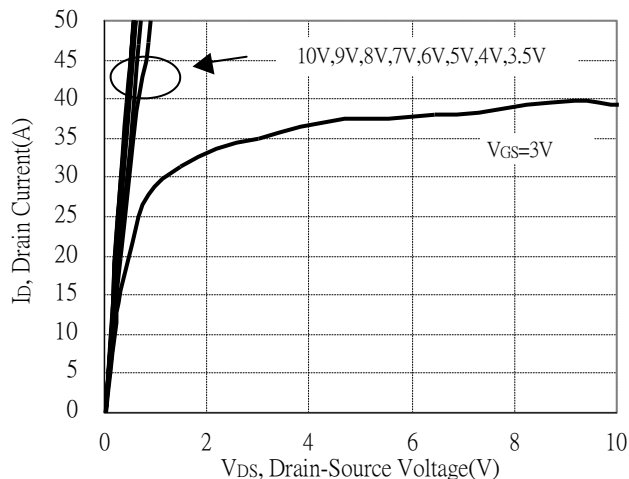
*3.Pulse width limited by maximum junction temperature.

Recommended Soldering Footprint

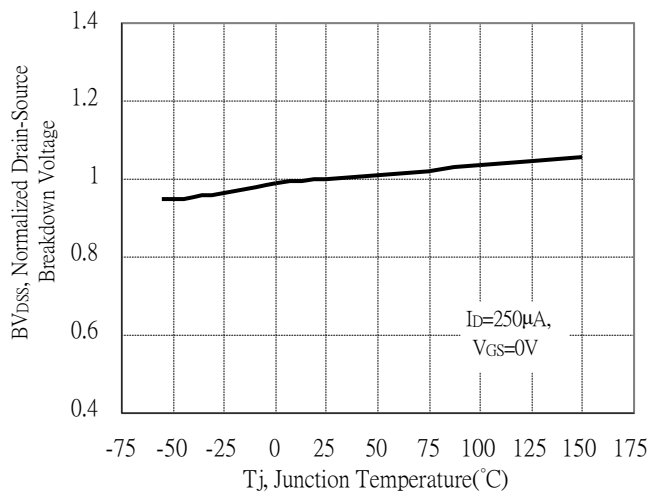


Typical Characteristics

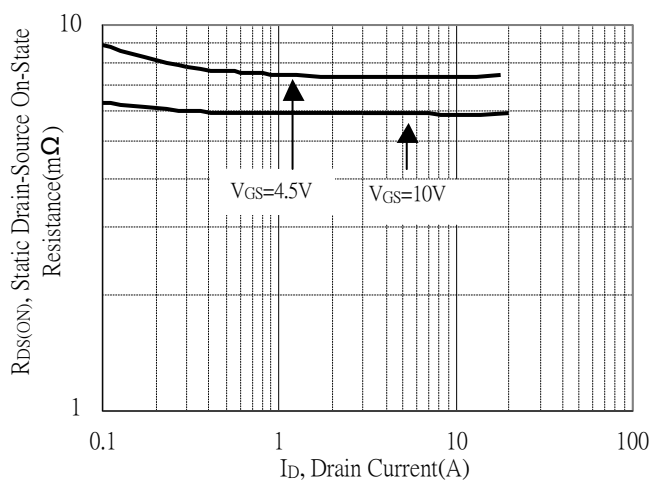
Typical Output Characteristics



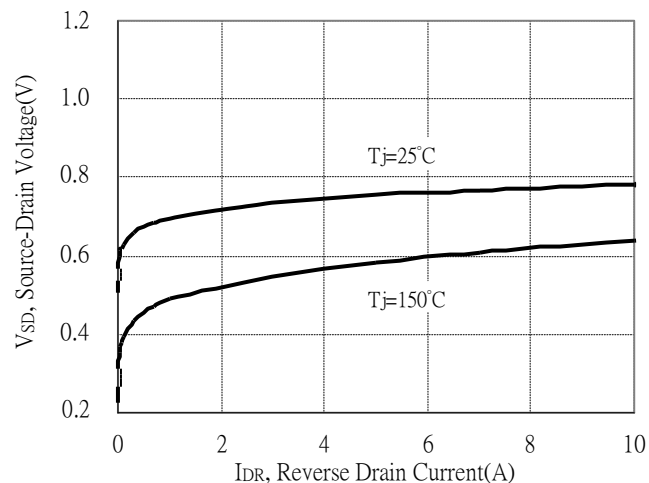
Breakdown Voltage vs Ambient Temperature



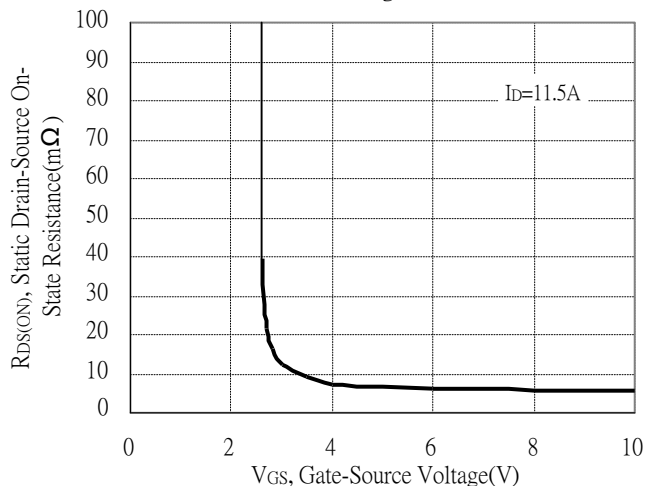
Static Drain-Source On-State resistance vs Drain Current



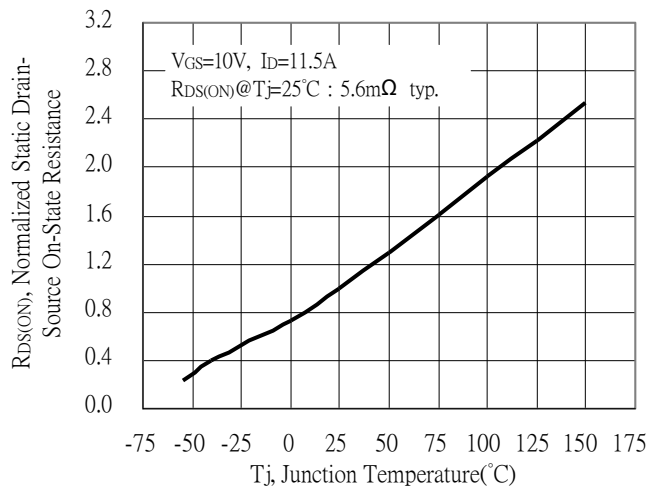
Reverse Drain Current vs Source-Drain Voltage



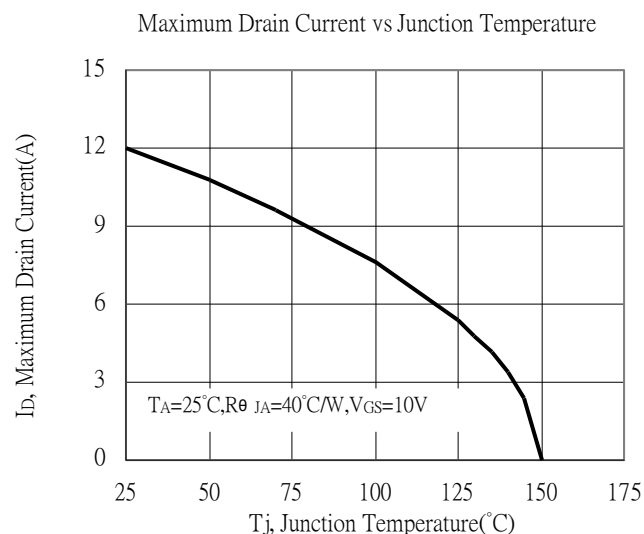
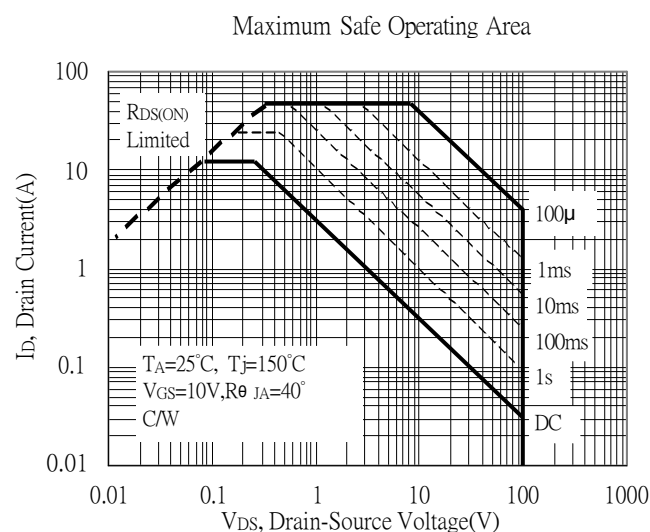
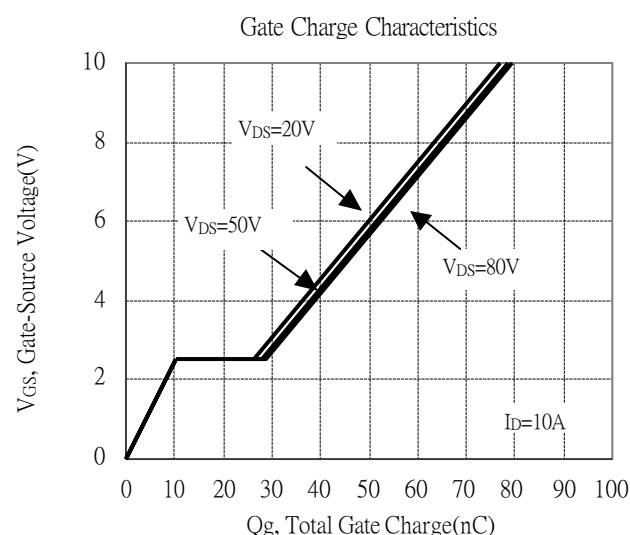
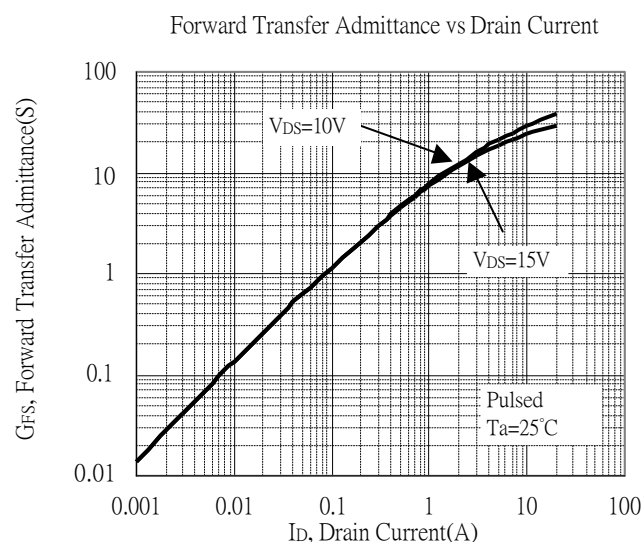
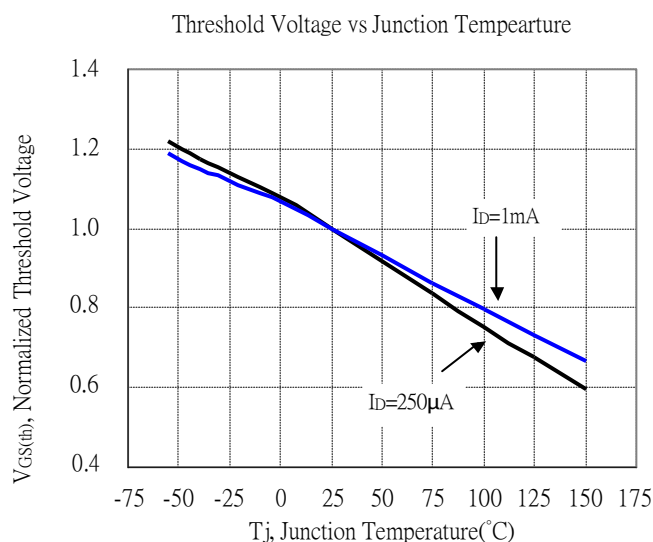
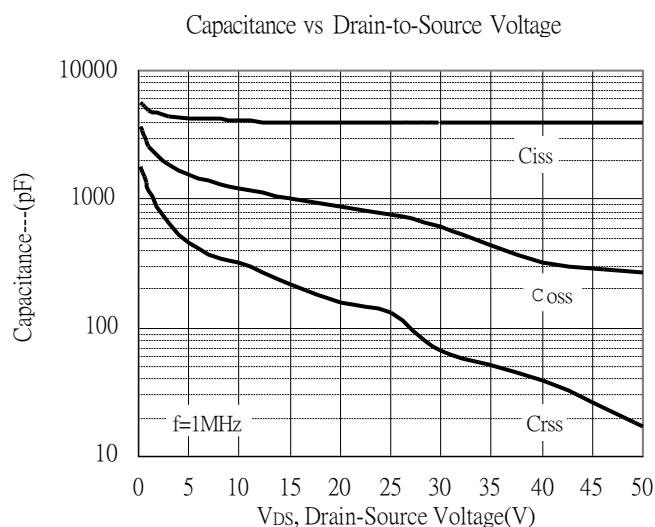
Static Drain-Source On-State Resistance vs Gate-Source Voltage



Drain-Source On-State Resistance vs Junction Temperature

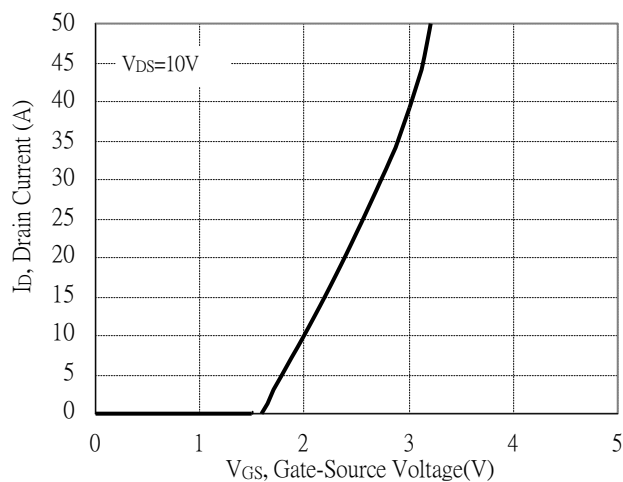


Typical Characteristics(Cont.)

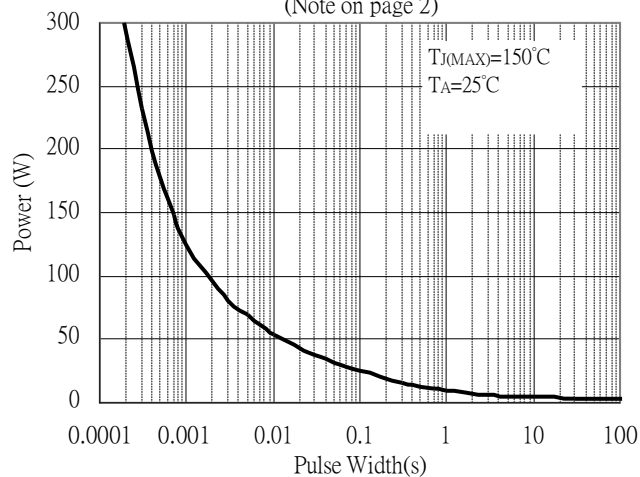


Typical Characteristics(Cont.)

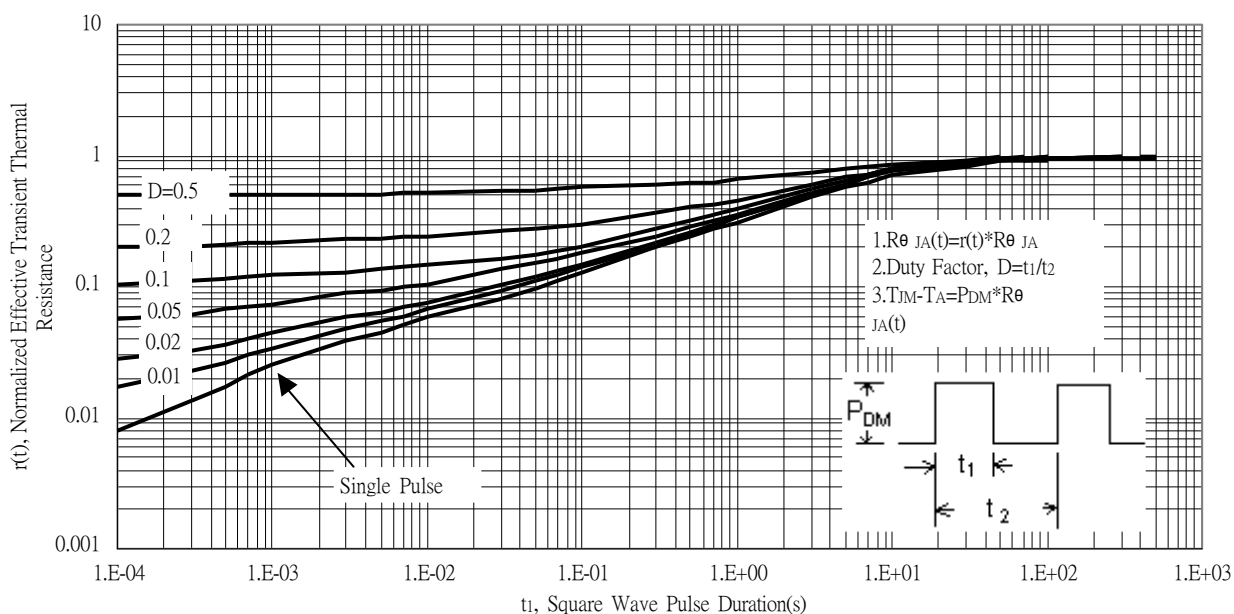
Typical Transfer Characteristics



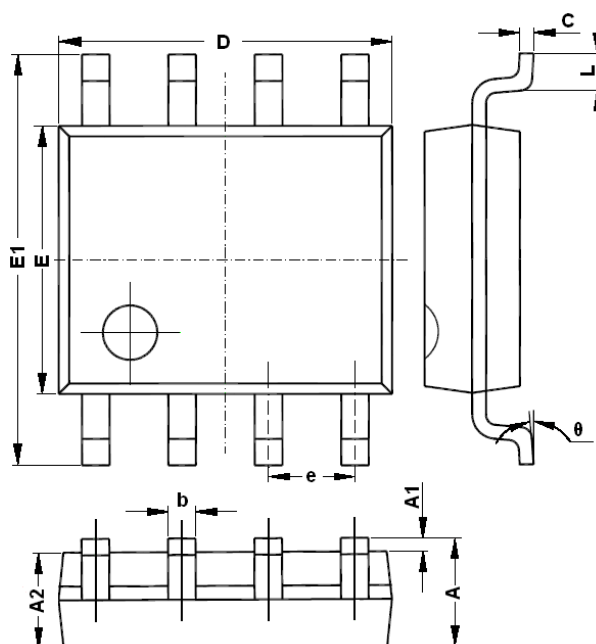
Single Pulse Power Rating, Junction to Ambient
 (Note on page 2)



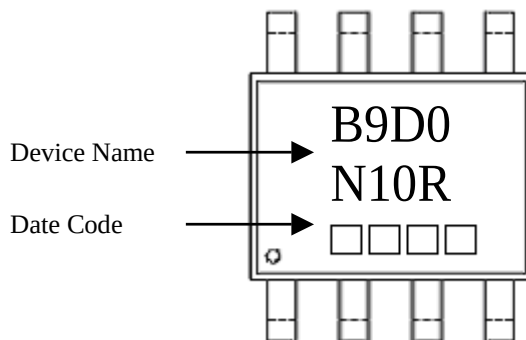
Transient Thermal Response Curves



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
 Code: Q8

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					