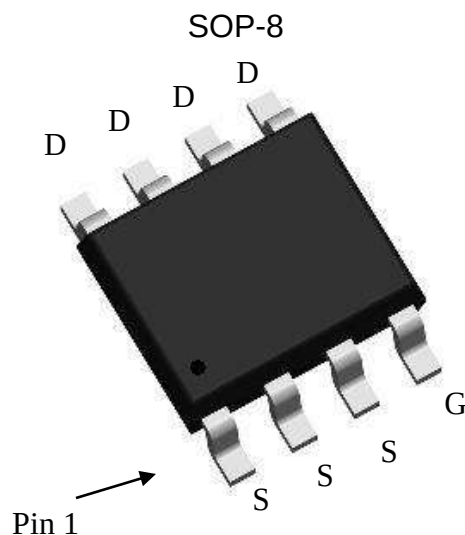


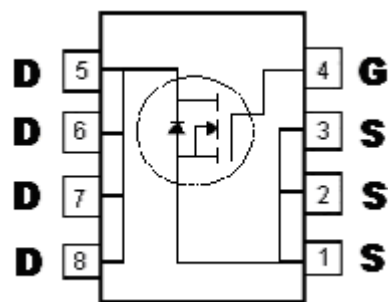
N-Channel Enhancement Mode Power MOSFET

Features:

- Low On Resistance
- Simple Drive Requirement
- Low Gate Charge
- Fast Switching Characteristic
- RoHS compliant package



BV_{DSS}	100V
I_D@V_{GS}=10V, T_c=25°C	25A
I_D@V_{GS}=10V, T_A=25°C	9A
R_{DS(ON)}@V_{GS}=10V, I_D=6A	7.5mΩ (typ)
R_{DS(ON)}@V_{GS}=4.5V, I_D=4A	12mΩ (typ)



G : Gate D :
Drain S : Source

Ordering Information

Device	Package	Shipping
KSCB8D5N10R	SOP-8 (Pb-free lead plating and halogen-free package)	4000 pcs / tape & reel

Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		V _{DS}	100	V
Gate-Source Voltage		V _{GS}	±20	
Continuous Drain Current @ T _C =25°C, V _{GS} =10V		I _D	25	A
Continuous Drain Current @ T _C =100°C, V _{GS} =10V			15.8	
Continuous Drain Current @ T _A =25°C, V _{GS} =10V			9 *2	
Continuous Drain Current @ T _A =70°C, V _{GS} =10V			7.2 *2	
Pulsed Drain Current		I _{DM}	100 *3	
Avalanche Current @ L=0.1mH(Typical)		I _{AS}	35	
Avalanche Energy @ L=0.5mH		E _{AS}	81	mJ
Total Power Dissipation	T _C =25°C	P _D	16 *1	W
	T _C =100°C		6.4 *1	
	T _A =25°C		2.1 *2,4	
	T _A =70°C		1.3 *2,4	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55~+150	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	R _{θJC}	7.8	°C/W
Thermal Resistance, Junction-to-ambient, max	R _{θJA}	60 *4	

Note : 1.The power dissipation P_D is based on T_{J(MAX)}=150 °C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.

2.The value of R_{θJA} is measured with the device mounted on 1 in²FR-4 board with 2 oz. copper, in a still air environment with T_A=25 °C. The value in any given application depends on the user's specific board design. The power dissipation P_{DSM} is based on R_{θJA} and the maximum allowed junction temperature of 150 °C.

3. Ratings are based on low frequency and low duty cycles to keep initial T_J=25 °C.

4. When mounted on 1 in²copper pad of FR-4 board ; 125°C/W when mounted on minimum copper pad.

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

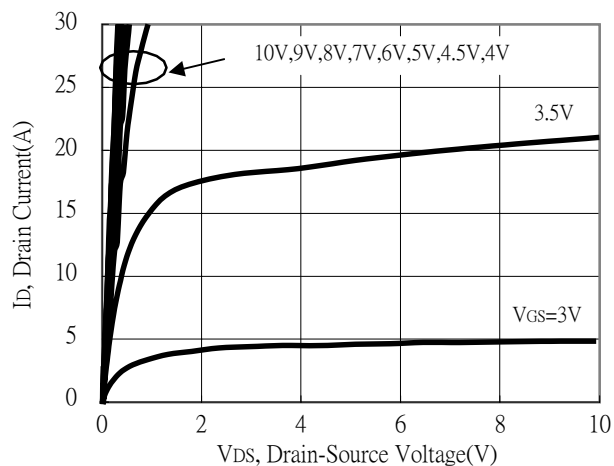
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	100	-	-	V	V _{GS} =0V, I _D =250μA
ΔBV _{DSS} /ΔT _J	-	0.06	-	V/°C	Reference to 25°C, I _D =250μA
V _{GS(th)}	1	-	2.5	V	V _{DS} =V _{GS} , I _D =250μA
*G _{FS}	-	38	-	S	V _{DS} =5V, I _D =20A
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0V
I _{DSS}	-	-	1	μA	V _{DS} =80V, V _{GS} =0V
	-	-	5		V _{DS} =80V, V _{GS} =0V, T _J =55°C

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
*R _{DS(ON)}	-	7.5	9	mΩ	V _{GS} =10V, I _D =6A
*R _{DS(ON)}	-	12	17	mΩ	V _{GS} =4.5V, I _D =4A
Dynamic					
*Q _g	-	44	-	nC	V _{DS} =50V, I _D =6A, V _{GS} =10V
*Q _{gs}	-	8.6	-		
*Q _{gd}	-	8.3	-		
*t _{d(ON)}	-	20	-	ns	V _{DS} =50V, I _D =4A, V _{GS} =10V, R _{GS} =1Ω
*t _r	-	18	-		
*t _{d(OFF)}	-	53	-		
*t _f	-	8.8	-		
C _{iss}	-	2712	-	pF	V _{GS} =0V, V _{DS} =50V, f=1MHz
C _{oss}	-	283	-		
C _{rss}	-	23	-		
R _g	-	0.64	-	Ω	f=1MHz
Source-Drain Diode					
*I _S	-	-	13	A	
*I _{SM}	-	-	52		
*V _{SD}	-	0.78	1.2	V	I _S =6A, V _{GS} =0V
*t _{rr}	-	40	-	ns	V _{GS} =0V, I _F =4A, dI _F /dt=100A/μs
*Q _{rr}	-	56	-	nC	

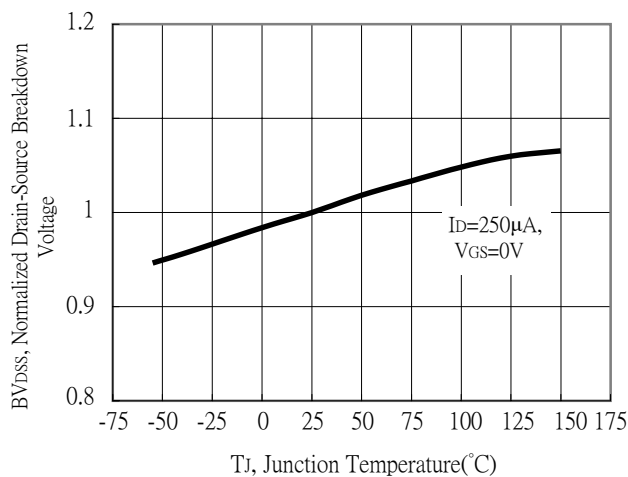
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics

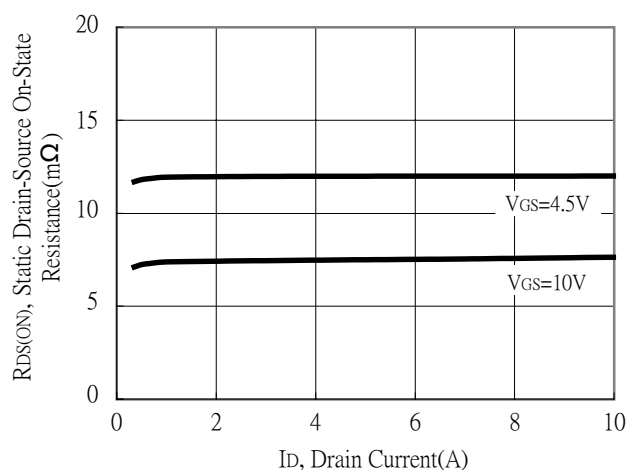
Typical Output Characteristics



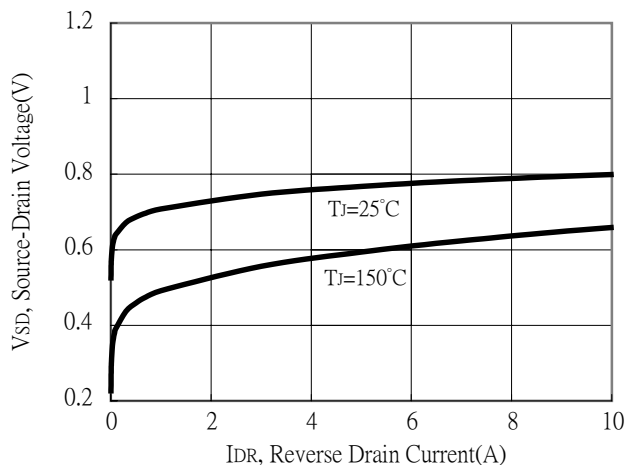
Breakdown Voltage vs Ambient Temperature



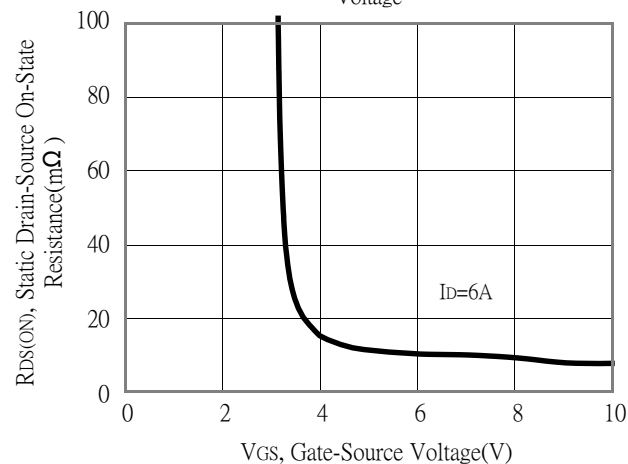
Static Drain-Source On-State resistance vs Drain Current



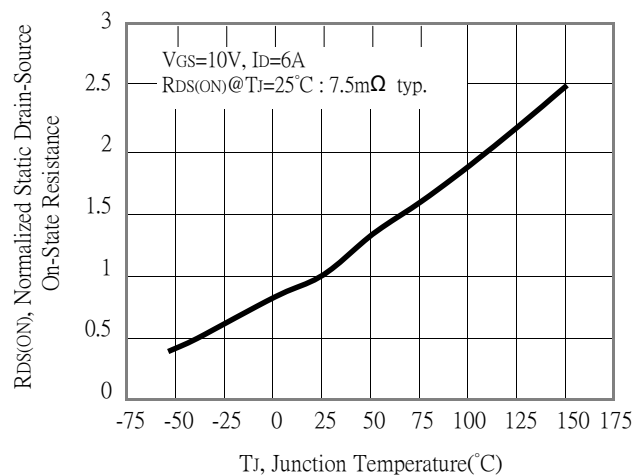
Reverse Drain Current vs Source-Drain Voltage



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

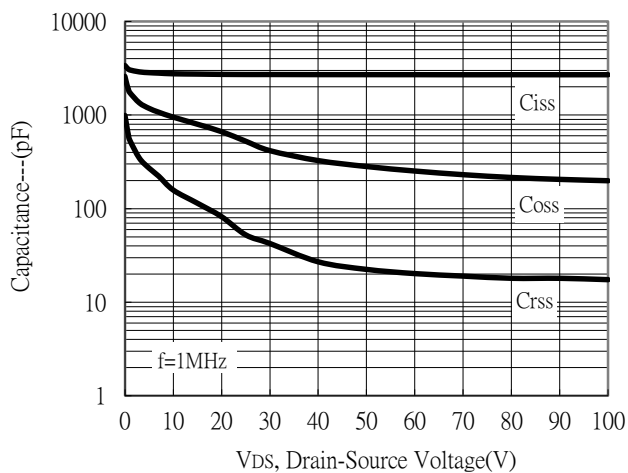


Drain-Source On-State Resistance vs Junction Temperature

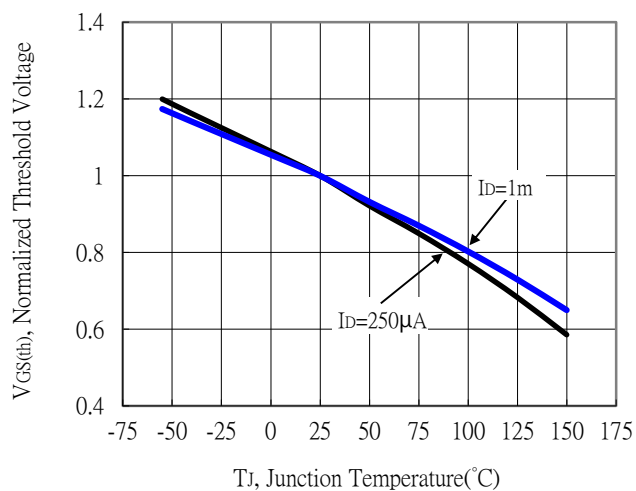


Typical Characteristics(Cont.)

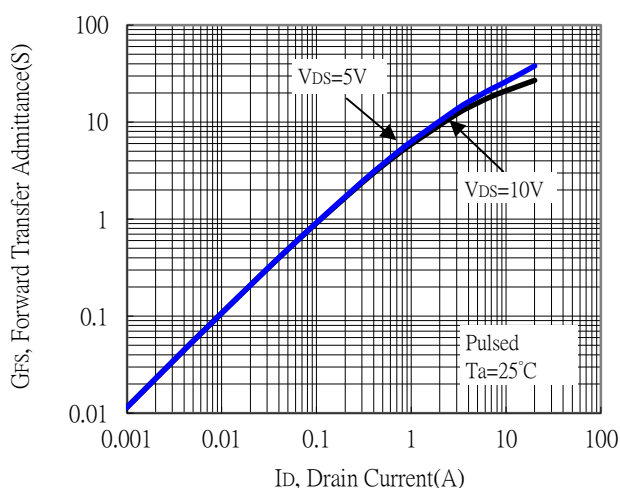
Capacitance vs Drain-to-Source Voltage



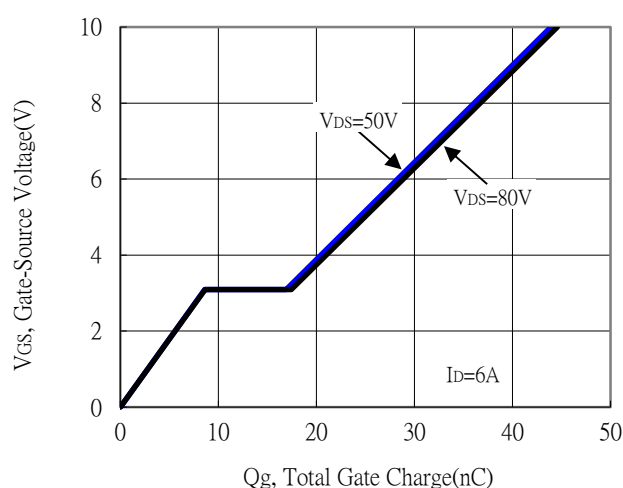
Threshold Voltage vs Junction Temperature



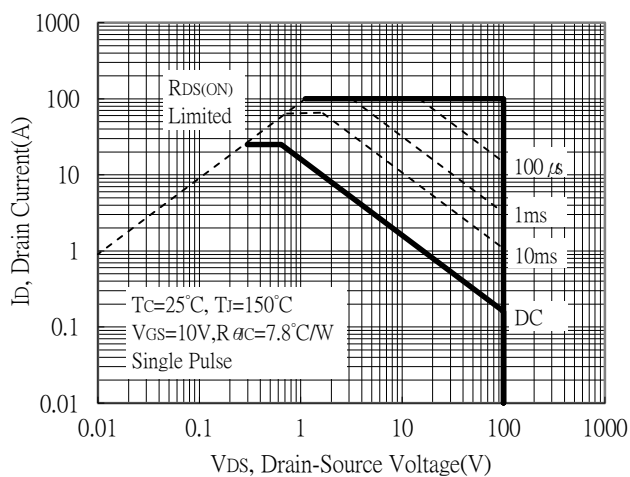
Forward Transfer Admittance vs Drain Current



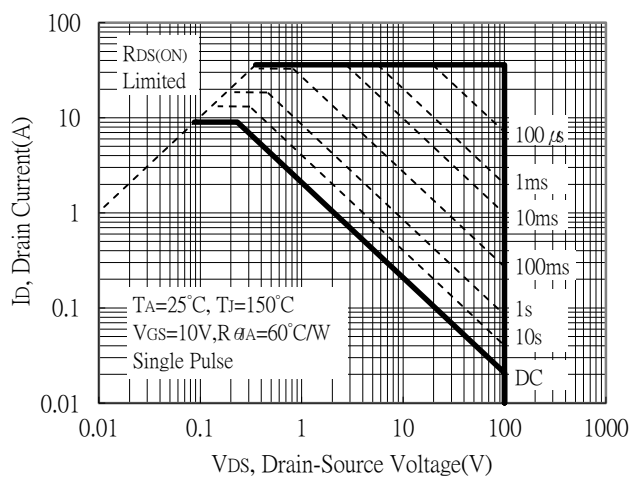
Gate Charge Characteristics



Maximum Safe Operating Area

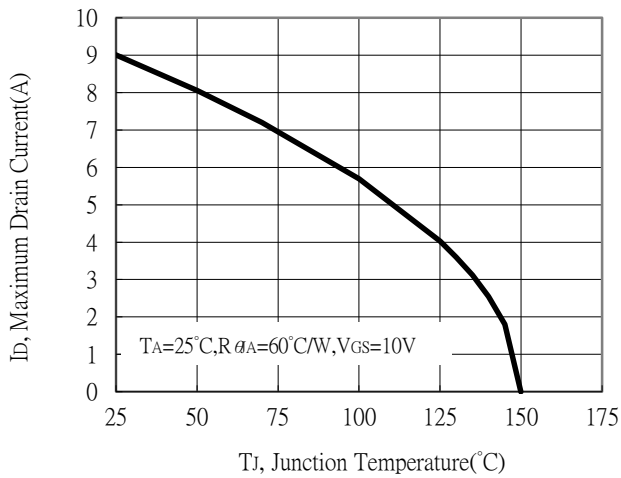


Maximum Safe Operating Area

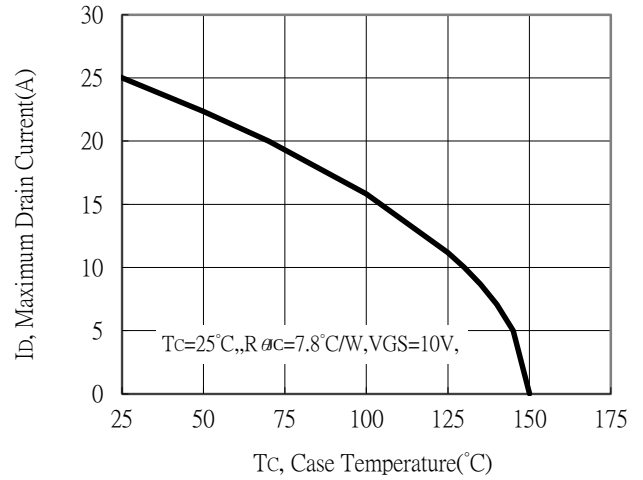


Typical Characteristics (Cont.)

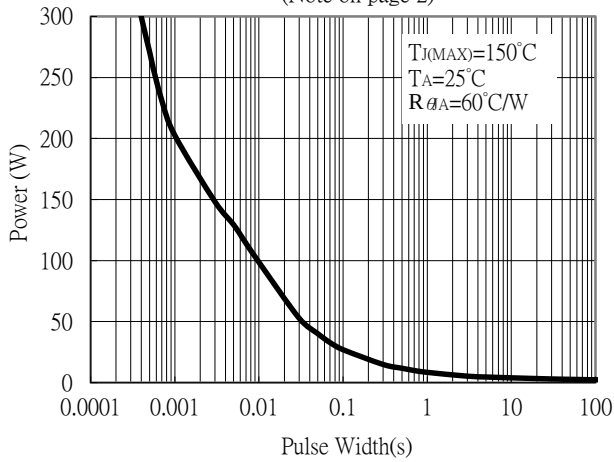
Maximum Drain Current vs Junction Temperature



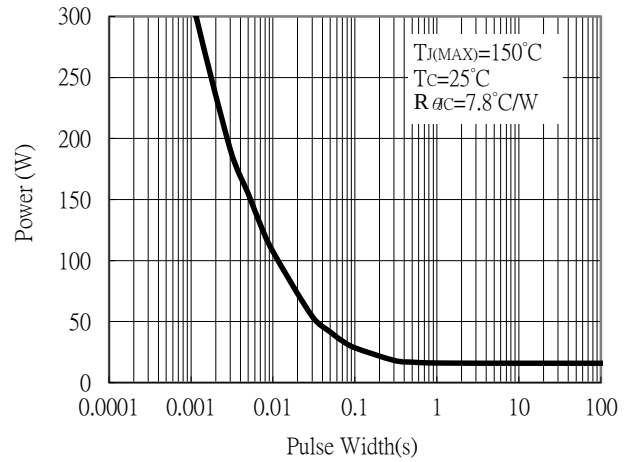
Maximum Drain Current vs Case Temperature



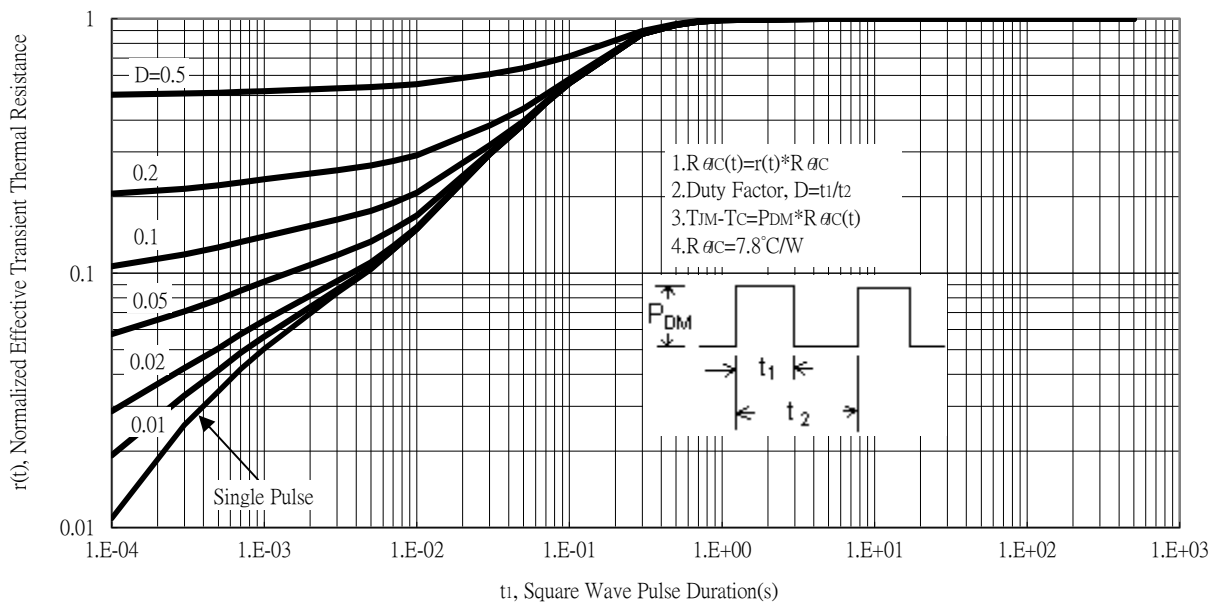
Single Pulse Power Rating, Junction to Ambient
 (Note on page 2)



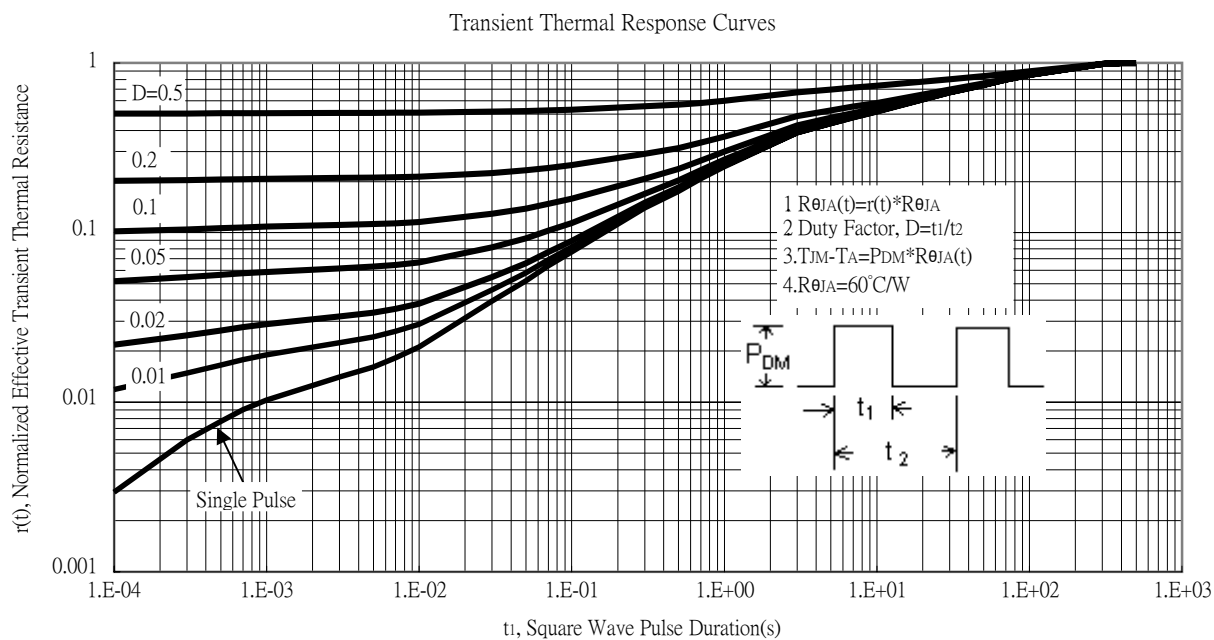
Single Pulse Power Rating, Junction to Case



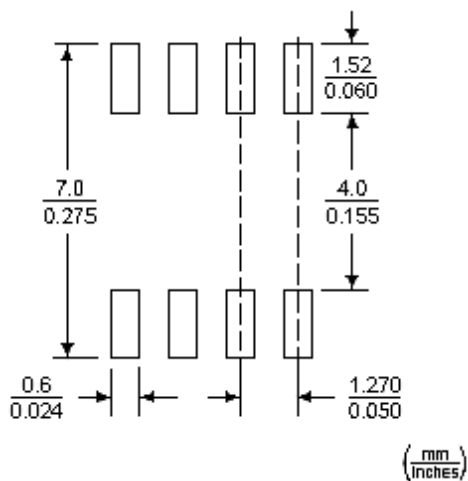
Transient Thermal Response Curves



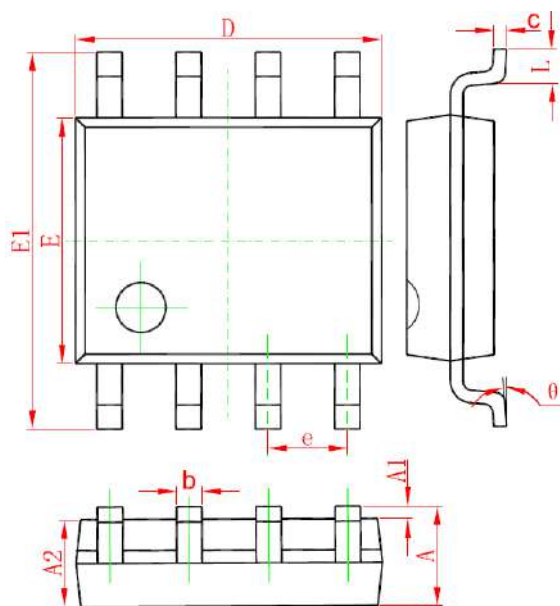
Typical Characteristics (Cont.)



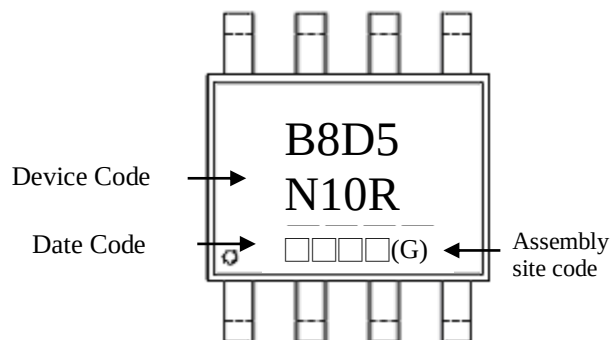
Recommended Soldering Footprint



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

Assembly site code : blank→ JCET, G →GEM

8-Lead SOP-8 Plastic Package

*: Typical

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		*0.050	
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					