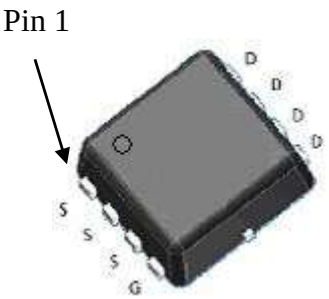
P-Channel Enhancement Mode Power MOSFET

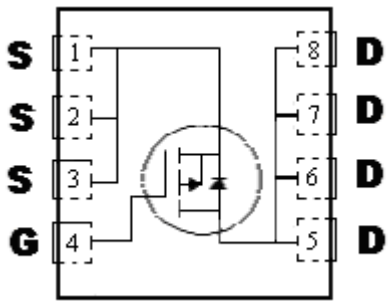
Features:

- Simple drive requirement
- Low on-resistance
- Fast switching speed
- Pb-free lead plating and halogen-free package

DFN3x3



BV_{DSS}	-150V
I_D	-4.5A @ V_{GS}=-10V, T_C=25°C
$R_{DSON(Typ)}$	0.78Ω @ V_{GS}=-10V, I_D=-1.5A



G：Gate S：Source D：Drain

Ordering Information

Device	Package	Shipping
KSPRE800P15	DFN3x3 (Pb-free lead plating and halogen-free package)	3000 pcs / tape & reel

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

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		V_{DS}	-150	V
Gate-Source Voltage		V_{GS}	±30	
Continuous Drain Current @ T_C=25°C, V_{GS}=-10V		I_D	-4.5	A
Continuous Drain Current @ T_C=100°C, V_{GS}=-10V			-2.8	
Continuous Drain Current @ T_A=25°C, V_{GS}=-10V *3			-1.0	
Continuous Drain Current @ T_A=70°C, V_{GS}=-10V *3			-0.8	
Pulsed Drain Current *1, 2		I_{DM}	-12	
Continuous Source-Drain Diode Current	T_C=25℃	I_S	-4.5	
Avalanche Current		I_{AS}	-12	
Avalanche Energy @ L=0.1mH, I_D=-12A, V_{GS}=-10V *4		E_{AS}	7.2	mJ
Maximum Power Dissipation	T_C=25℃	P_D	42	W
	T_C=70℃		27	
	T_A=25℃ *3		2.1	
	T_A=70℃ *3		1.3	
Operating Junction and Storage Temperature Range		Tj, Tstg	-55~+150	°C

Thermal Data

Parameter	Symbol	Typ	Maximum	Unit
Thermal Resistance, Junction-to-ambient *3	$R_{th,j-a}$	50	60	°C/W
Thermal Resistance, Junction-to-case	$R_{th,j-c}$	2.5	3	

Note : 1. Pulse width limited by maximum junction temperature.
2. Duty cycle≤1%.
3. Surface mounted on 1 in² copper pad of FR-4 board; 135°C/W when mounted on minimum pad of 2 oz. copper.
4. 100% tested by conditions of L=0.1mH, V_{GS}=-10V, I_{AS}=-4A, V_{DD}=-25V

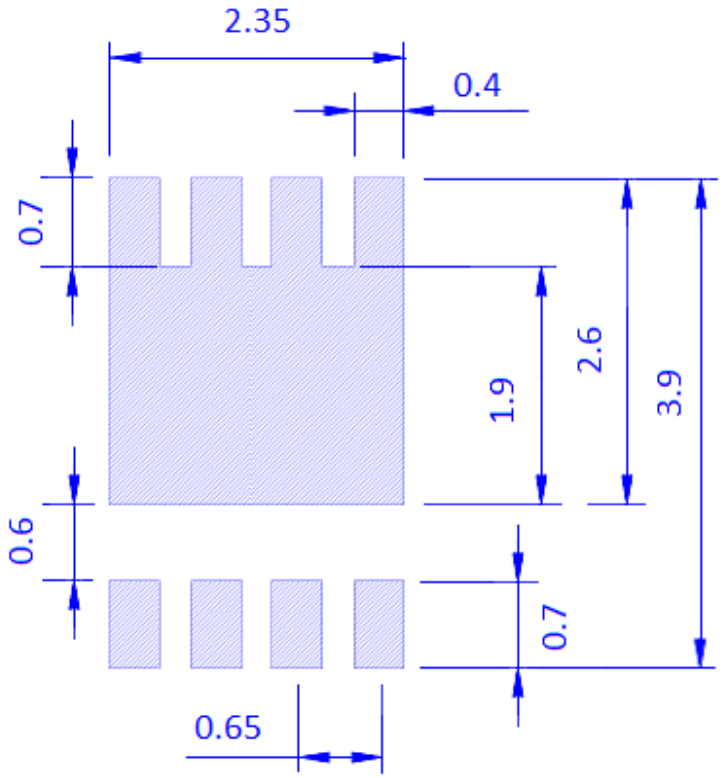
Characteristics (Tc=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	-150	-	-	V	V_{GS}=0V, I_D=-250μA
$\Delta BV_{DSS}/\Delta T_J$	-	-150	-	mV/°C	I_D=-250μA, reference to 25°C
$\Delta V_{GS(th)}/\Delta T_J$	-	6	-		
$V_{GS(th)}$	-2	-	-4	V	V_{DS} =V_{GS}, I_D=-250μA
I_{GSS}	-	-	±100	nA	V_{GS}=±20V, V_{DS}=0V
I_{DSS}	-	-	-1	μA	V_{DS} =-120V, V_{GS} =0V
	-	-	-10		V_{DS} =-120V, V_{GS} =0V, T_J=85°C
$R_{DS(ON)}$ *1	-	0.78	1.2	Ω	V_{GS} =-10V, I_D=-1.5A
G_{FS} *1	-	3.2	-	S	V_{DS} =-10V, I_D=-3A

Dynamic					
Qg *1, 2	-	6.8		nC	V_{DS}=-75V, I_D=-3A,V_{GS}=-10V
Qgs *1, 2	-	1.7	-		
Qgd *1, 2	-	1.9	-		
$t_{d(ON)}$ *1, 2	-	7.2	-	ns	V_{DS}=-75V, I_D=-3A, V_{GS}=-10V, R_G=25Ω
tr *1, 2	-	17.4	-		
$t_{d(OFF)}$ *1, 2	-	17	-		
t_f *1, 2	-	14.6	-		
Ciss	-	304	-	pF	V_{DS}=-25V, V_{GS}=0V, f=1MHz
Coss	-	30	-		
Crss	-	27	-		
Rg	-	5.7	-	Ω	f=1MHz
Source-Drain Diode					
I_S *1	-	-	-4.5	A	T_C=25°C
I_{SM} *3	-	-	-12		
V_{SD} *1	-	-0.87	-1.3	V	I_F=-3A, V_{GS}=0V
trr	-	38.6	-	ns	I_F=-3A, dI_F/dt=100A/μs
Qrr	-	67.3	-	nC	

Note : *1.Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%
*2.Independent of operating temperature
*3.Pulse width limited by maximum junction temperature.

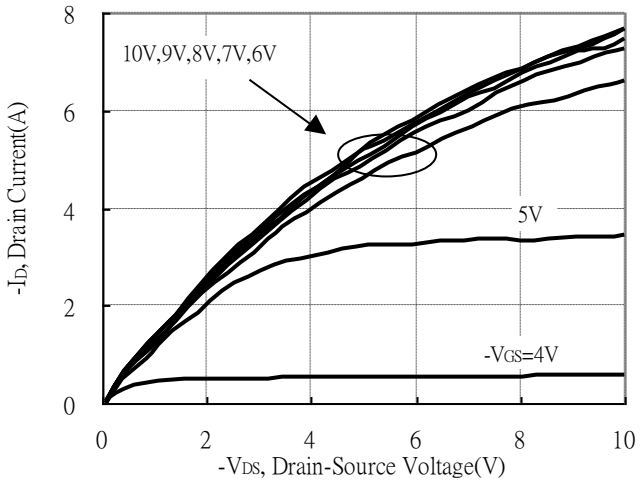
Recommended Soldering Footprint



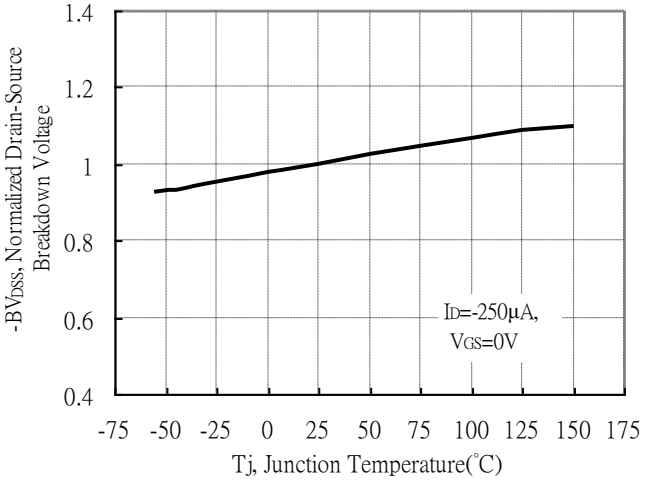
unit : mm

Typical Characteristics

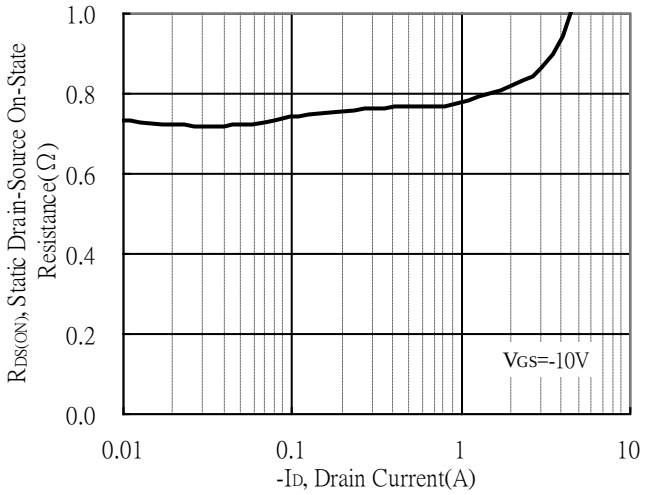
Typical Output Characteristics



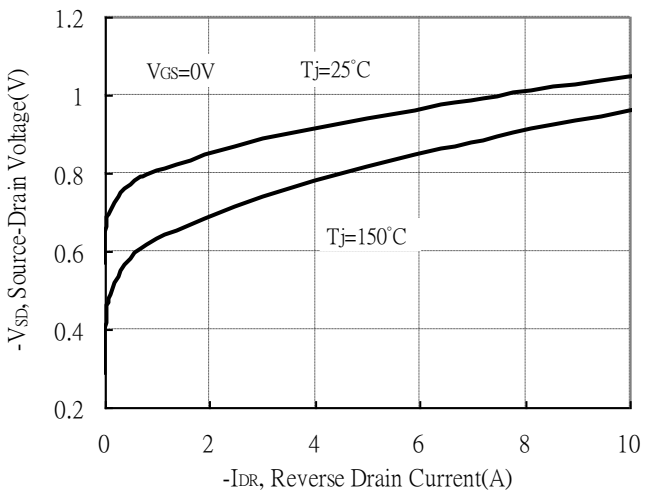
Brekdown Voltage vs Ambient Temperature



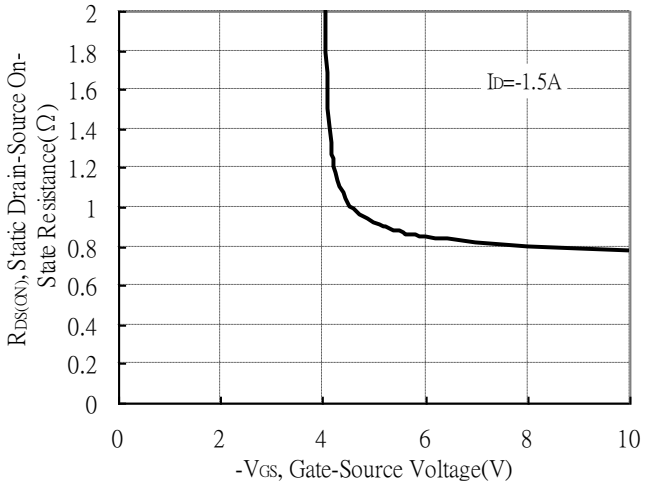
Static Drain-Source On-State resistance vs Drain Current



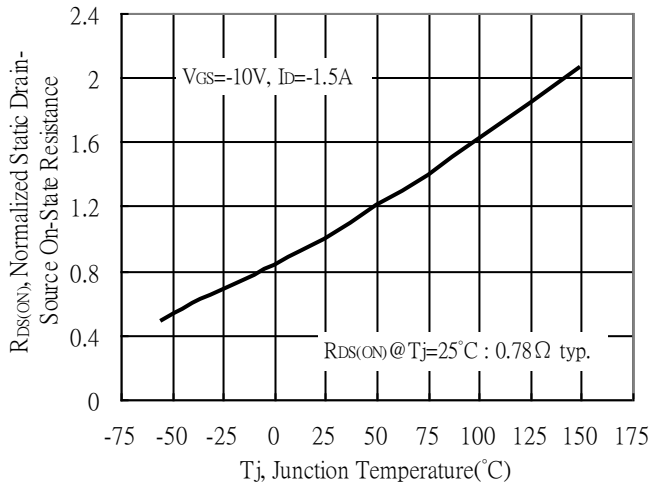
Reverse Drain Current vs Source-Drain Voltage



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

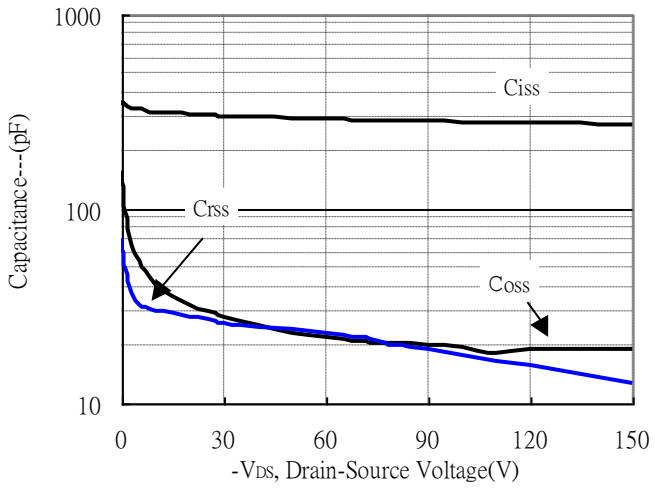


Drain-Source On-State Resistance vs Junction Tempearture

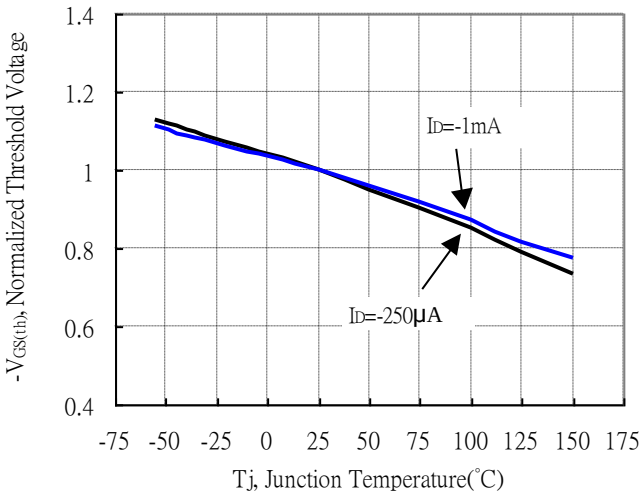


Typical Characteristics(Cont.)

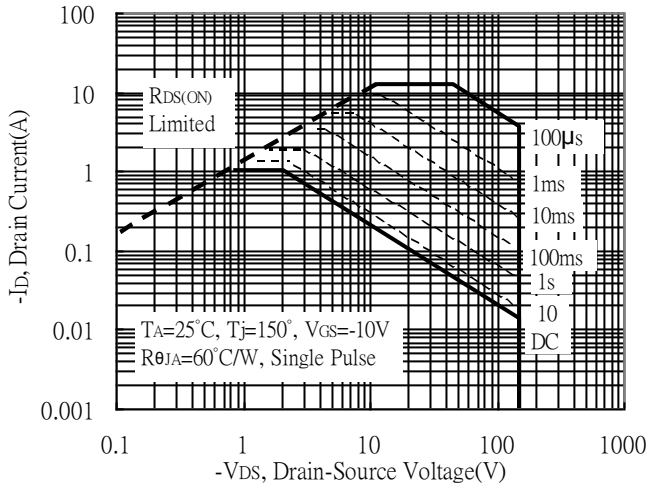
Capacitance vs Drain-to-Source Voltage



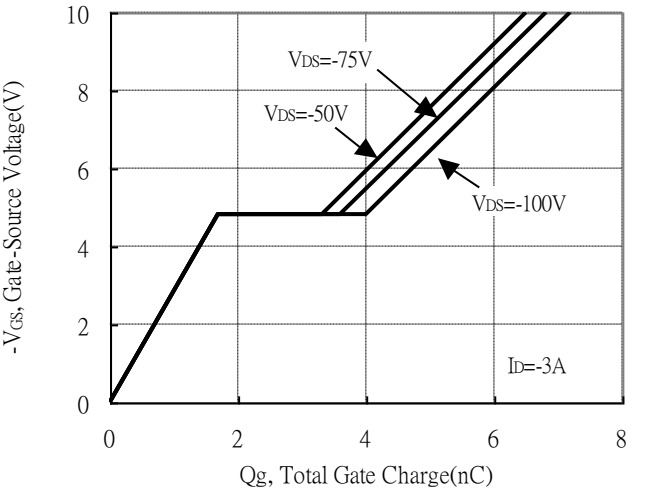
Threshold Voltage vs Junction Tempearture



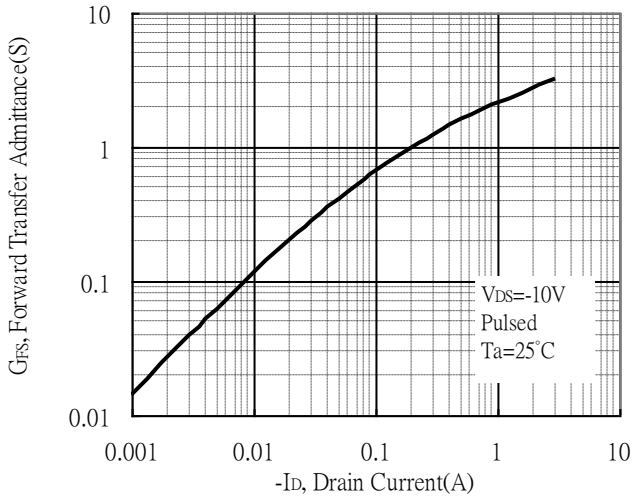
Maximum Safe Operating Area



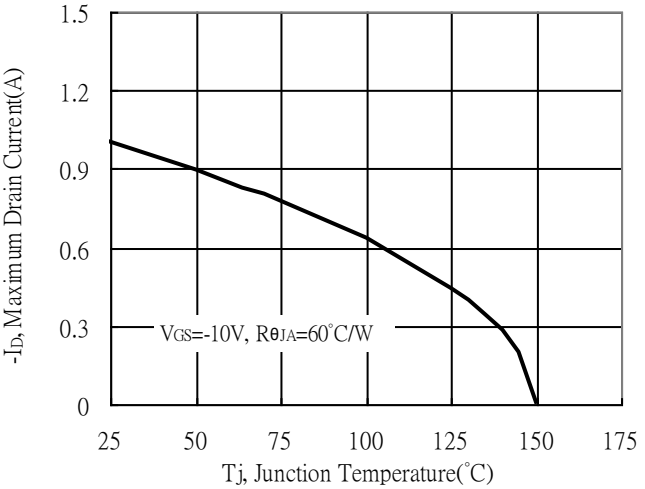
Gate Charge Characteristics



Forward Transfer Admittance vs Drain Current

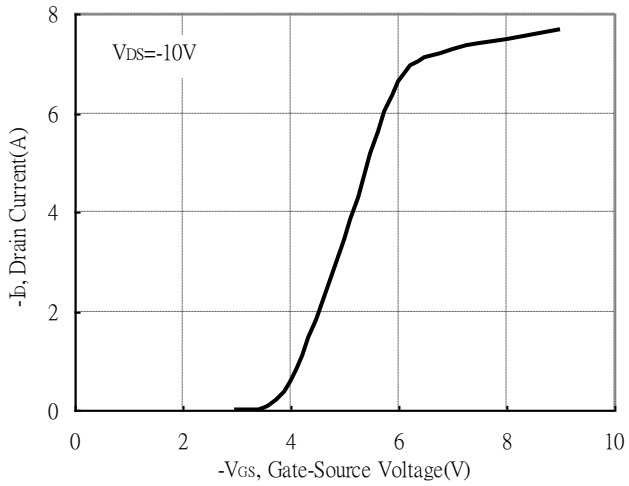


Maximum Drain Current vs Junction Temperature

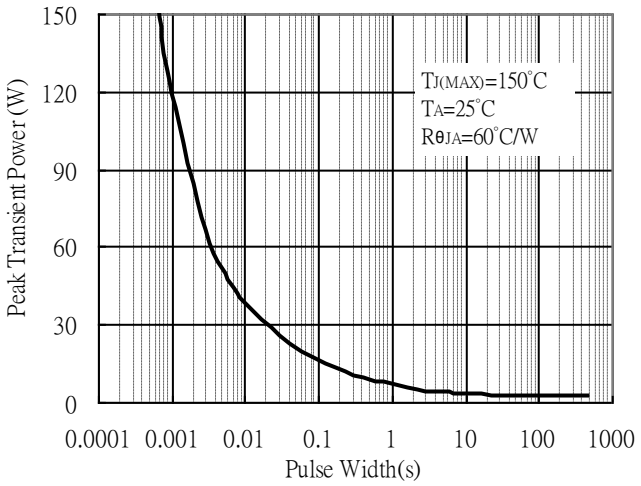


Typical Characteristics(Cont.)

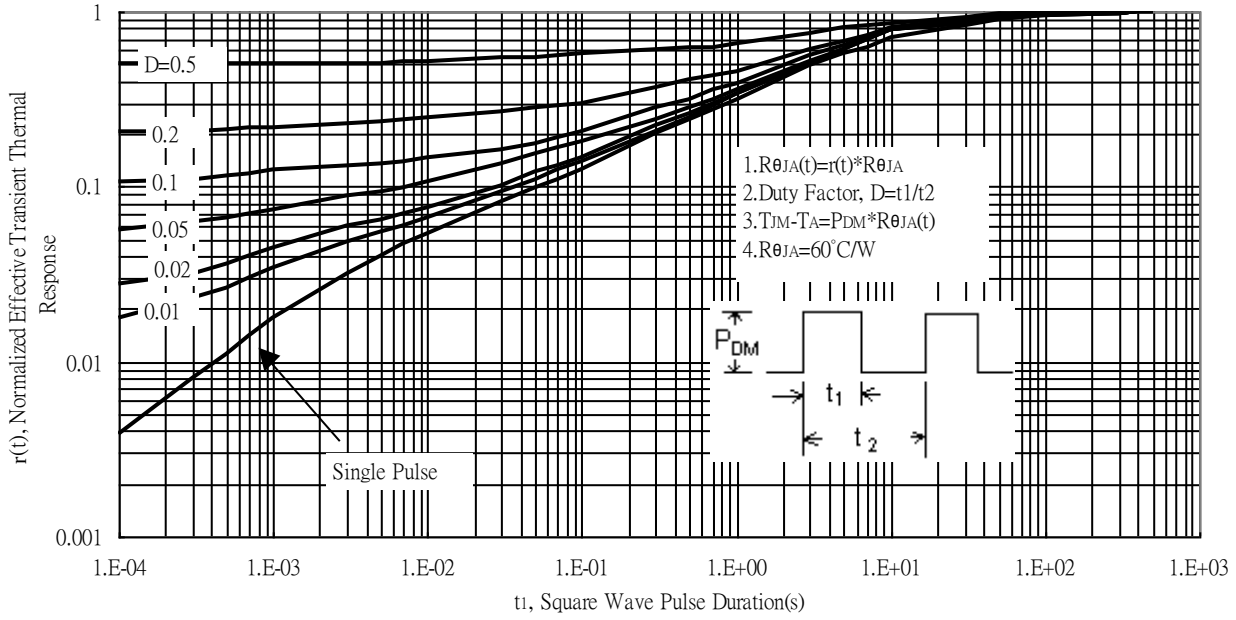
Typical Transfer Characteristics



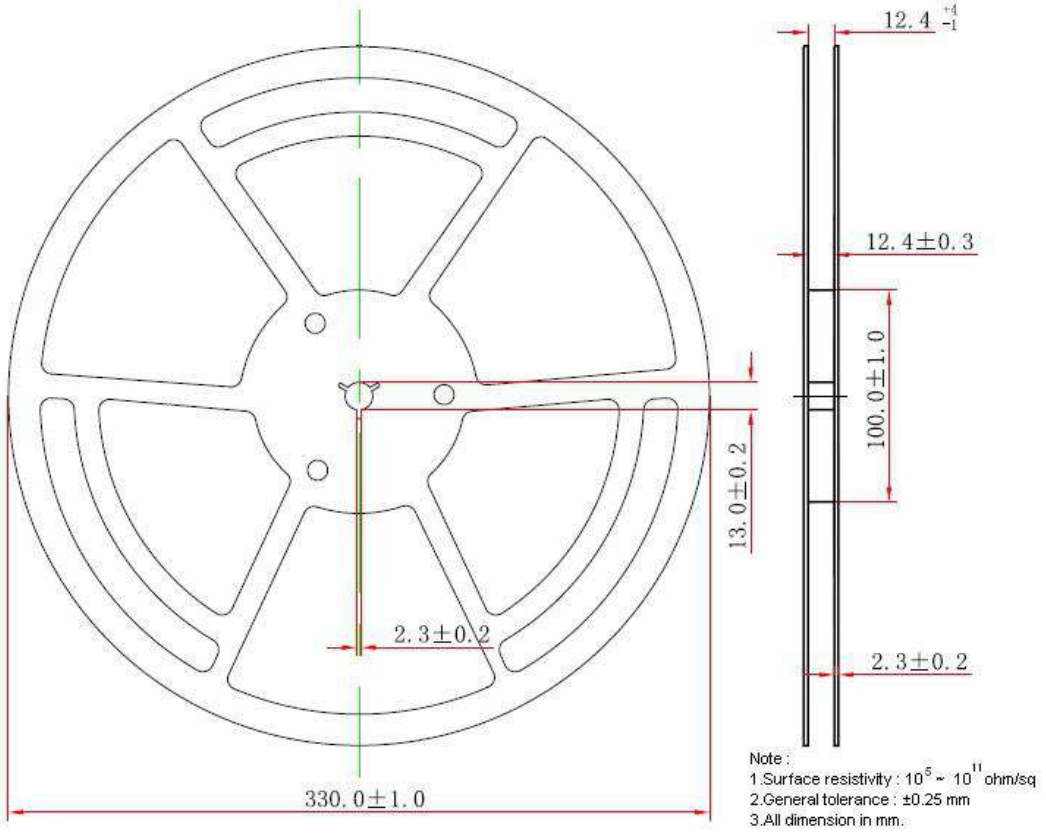
Single Pulse Maximum Power Dissipation



Transient Thermal Response Curves

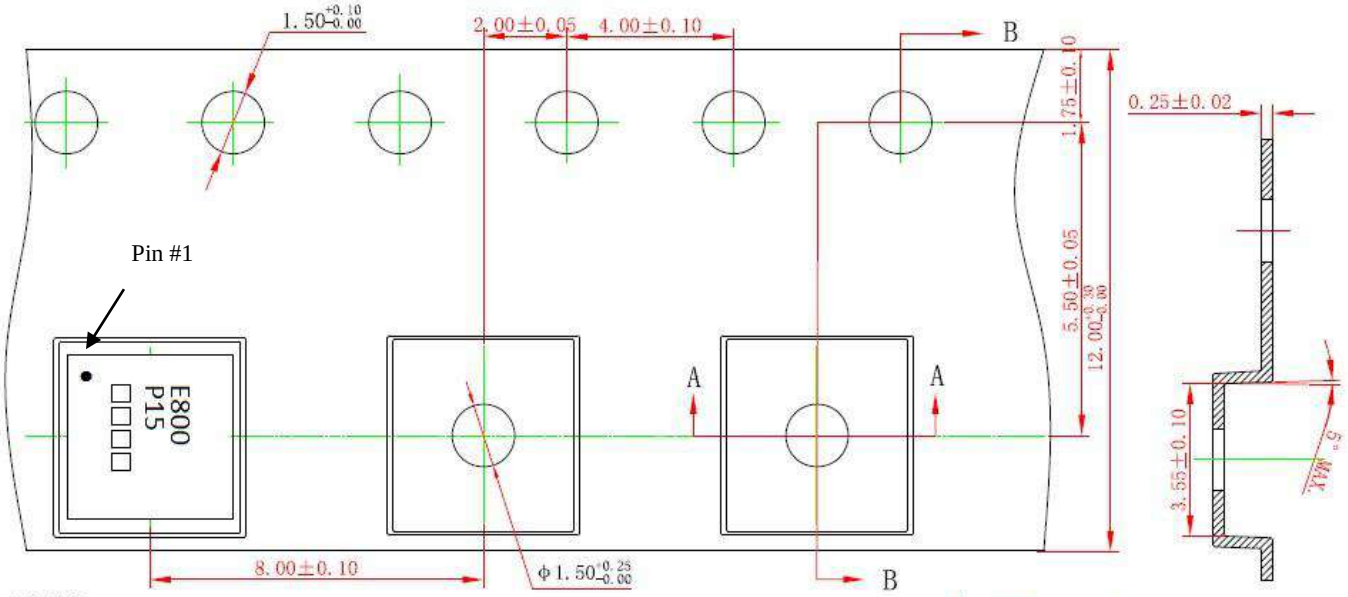


Reel Dimension



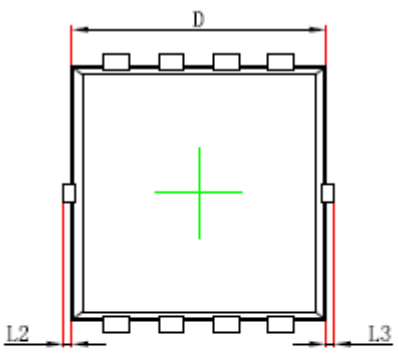
Note :
1.Surface resistivity : 10^5 ~ 10^{11} ohm/sq
2.General tolerance : ±0.25 mm
3.All dimension in mm.

Carrier Tape Dimension

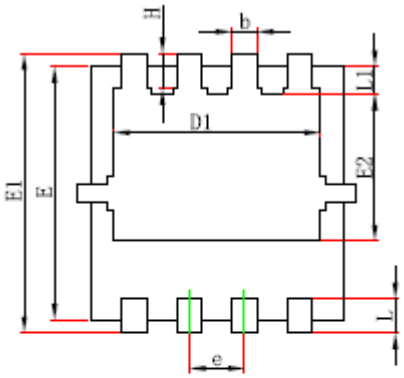


NOTES:
1.CARRIER TAPE COLOR : BLACK
2.COVER TAPE WIDTH:9.50±0.10
3.COVER TAPE COLOR:TRANSPARENT
4. ANTISTATIC COATED 10^5 ~ 10^{11} OHMS/SQ.
5.10 SPROCKET HOLE PITCH CUMULATIVE TOLERANCE ±0.20MAX.
6.CAMBER NOT TO EXCEED 1 MM IN 100 MM
7.ALL DIMS IS mm.
8.THE DIRECTION OF VIEW :

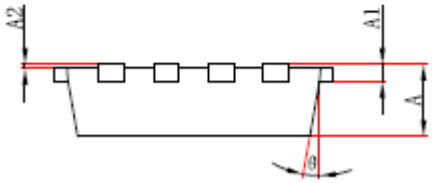
DFN3×3 Dimension



Top View

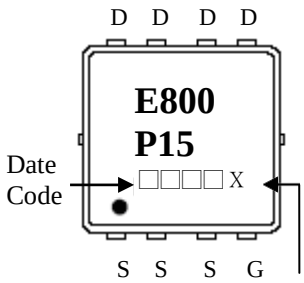


Bottom View



Side View

Marking:



Assembly site code :
blank →site 1
G→ site 2

8-Lead DFN3x3 Plastic Package

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

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.026	0.033	0.650	0.850	b	0.008	0.016	0.200	0.400
A1	0.006 REF		0.152 REF		e	0.022	0.030	0.550	0.750
A2	0.000	0.002	0.000	0.050	L	0.012	0.020	0.300	0.500
D	0.114	0.126	2.900	3.200	L1	0.007	0.019	0.180	0.480
D1	0.091	0.102	2.300	2.600	L2	0.000	0.006	0.000	0.150
E	0.114	0.126	2.900	3.200	L3	0.000	0.006	0.000	0.150
E1	0.124	0.136	3.150	3.450	H	0.012	0.020	0.300	0.515
E2	0.058	0.076	1.480	1.935	θ	8°	13°	8°	13°