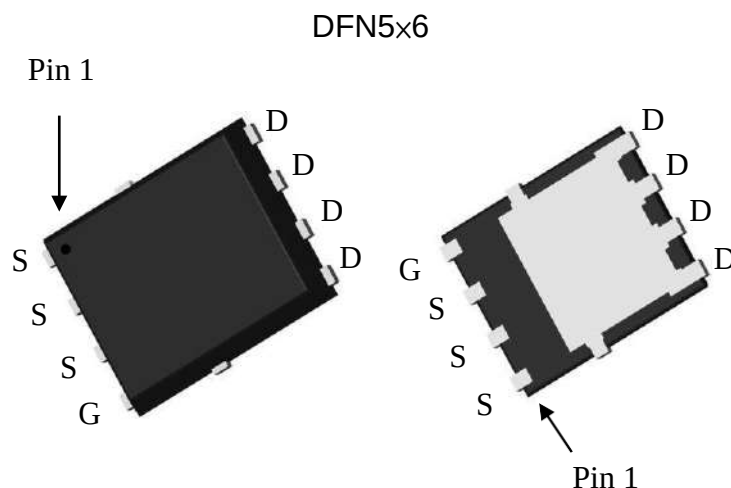


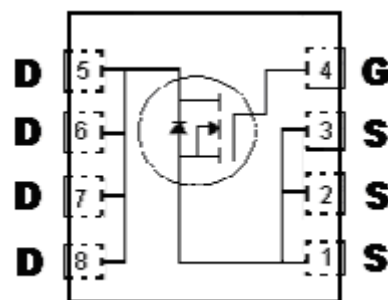
N-Channel Enhancement Mode Power MOSFET

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	46A
I_D@V_{GS}=10V, T_A=25°C	12A
R_{DS(ON)}@V_{GS}=10V, I_D=11.5A	6.1 mΩ (typ)
R_{DS(ON)}@V_{GS}=4.5V, I_D=9.5A	11.5 mΩ (typ)



G : Gate D : Drain S : Source

Ordering Information

Device	Package	Shipping
KPRB7D5N10BR	DFN 5 × 6 (Pb-free lead plating and halogen-free package)	3000 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	46	A
Continuous Drain Current @ T _C =70°C, V _{GS} =10V			36.8	
Continuous Drain Current @ T _A =25°C, V _{GS} =10V			12	
Continuous Drain Current @ T _A =70°C, V _{GS} =10V			9.6	
Pulsed Drain Current		I _{DM}	184 *1	
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	40	W
	T _C =100°C		16	
	T _A =25°C		2.7 *3	
	T _A =70°C		1.7 *3	
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}	3.09	°C/W
Thermal Resistance, Junction-to-ambient, max	R _{θJA}	45.5 *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, t ≤ 10s ; 125°C/W when mounted on minimum copper pad.

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

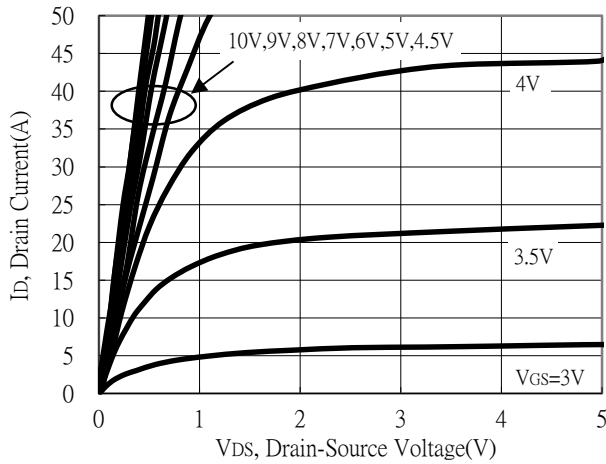
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	100	-	-	V	V _{GS} =0V, I _D =250μA
ΔBV _{DSS} /ΔT _J	-	0.06	-	V/°C	Reference to 25°C, I _D =250μA
V _{GS(th)}	1	-	2.5	V	V _{DS} = V _{GS} , I _D =250μA
*G _{FS}	-	37.6	-	S	V _{DS} = 5V, I _D =20A
I _{GSS}	-	-	±100	nA	V _{GS} =±20V, V _{DS} =0V
I _{DSS}	-	-	1	μA	V _{DS} = 80V, V _{GS} =0V
	-	-	25		V _{DS} = 80V, V _{GS} = 0V, T _J =125°C

*R _{DS(ON)}	-	6.1	8	mΩ	V _{GS} =10V, I _D =11.5A
	-	11.5	17		V _{GS} =4.5V, I _D =9.5A
Dynamic					
*Q _g	-	45.1	-	nC	V _{DS} =50V, I _D =11.5A, V _{GS} =10V
*Q _{gs}	-	9	-		
*Q _{gd}	-	10	-		
*t _{d(ON)}	-	20.6	-	ns	V _{DS} =50V, I _D =11.5A, V _{GS} =10V, R _{GS} =6Ω
*t _r	-	20.5	-		
*t _{d(OFF)}	-	62.7	-		
*t _f	-	16.2	-		
C _{iss}	-	2647	-	pF	V _{GS} =0V, V _{DS} =50V, f=1MHz
C _{oss}	-	358	-		
C _{rss}	-	33	-		
R _g	-	0.7	-	Ω	f=1MHz
Source-Drain Diode					
*I _S	-	-	33	A	
*I _{SM}	-	-	132		
*V _{SD}	-	0.82	1.2	V	I _S =15A, V _{GS} =0V
*t _{rr}	-	40	-	ns	V _{GS} =0V, I _F =15A, dI _F /dt=100A/μs
*Q _{rr}	-	57	-	nC	

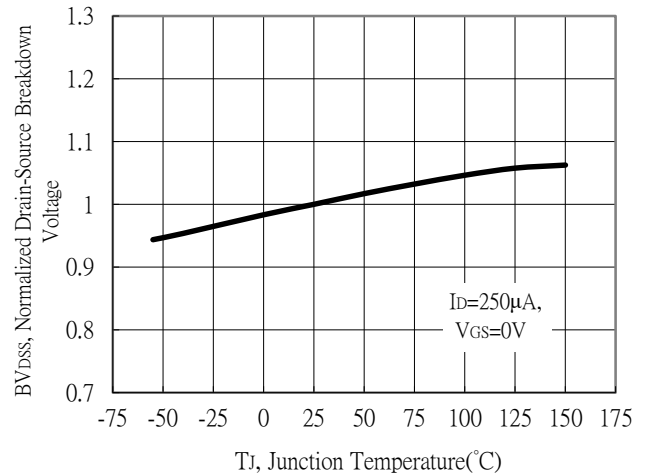
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics

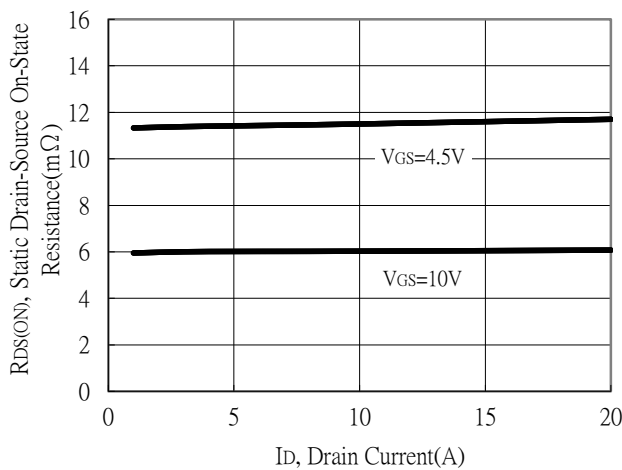
Typical Output Characteristics



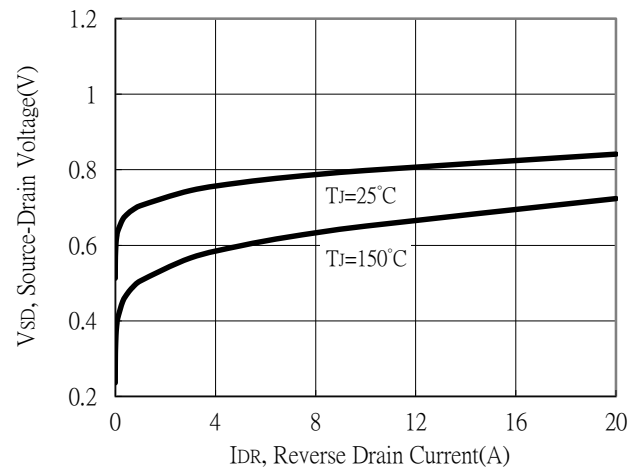
Breakdown Voltage vs Ambient Temperature



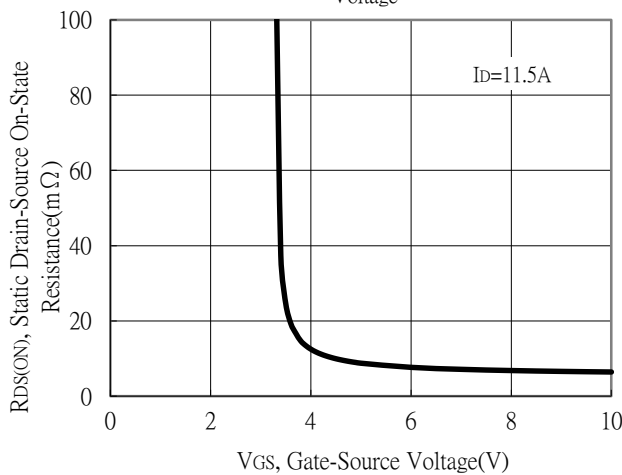
Static Drain-Source On-State resistance vs Drain Current



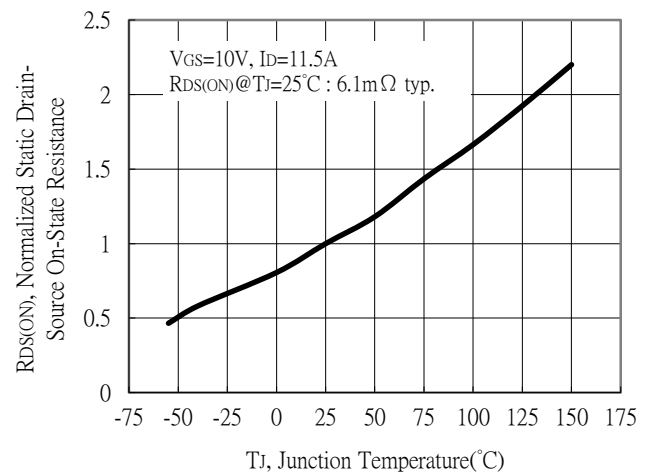
Reverse Drain Current vs Source-Drain Voltage



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

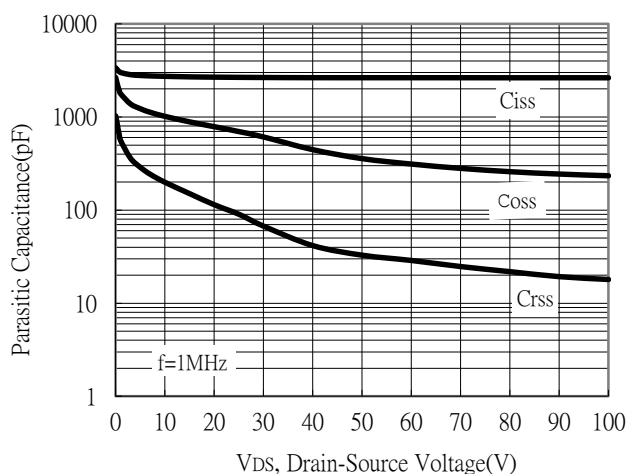


Drain-Source On-State Resistance vs Junction Temperature

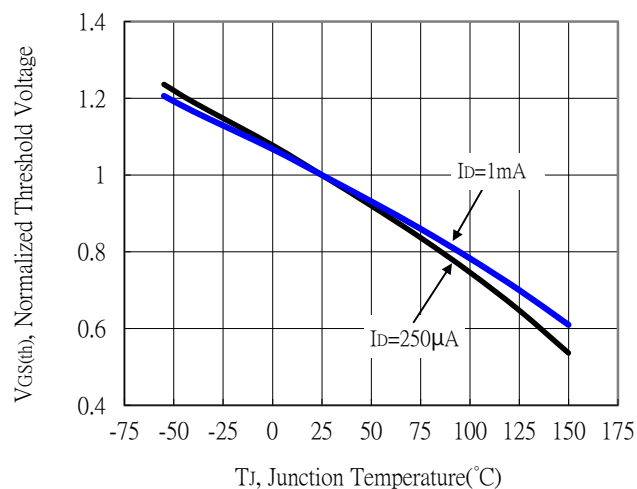


Typical Characteristics(Cont.)

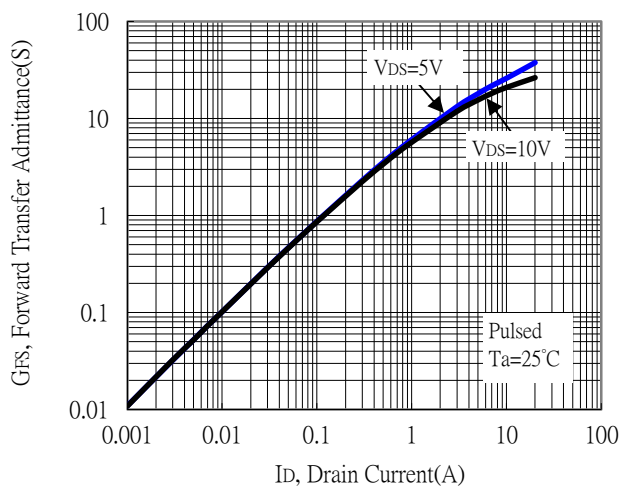
Capacitance vs Drain-to-Source Voltage



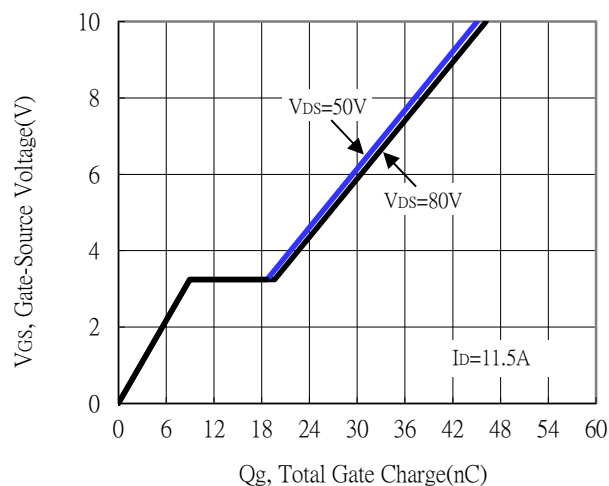
Threshold Voltage vs Junction Temperature



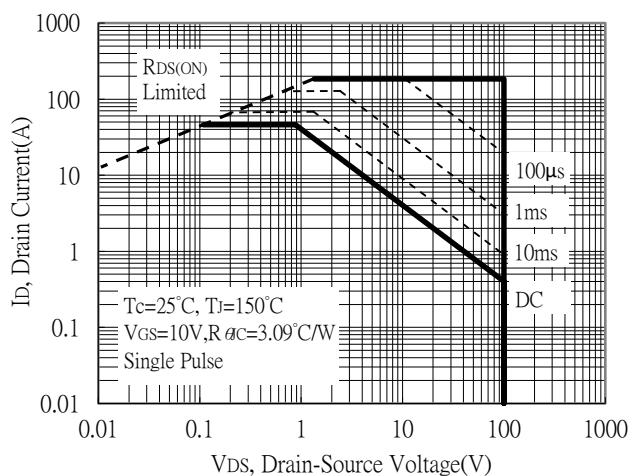
Forward Transfer Admittance vs Drain Current



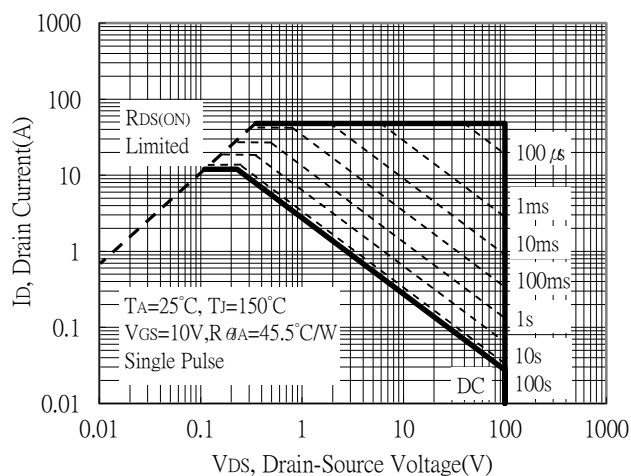
Gate Charge Characteristics



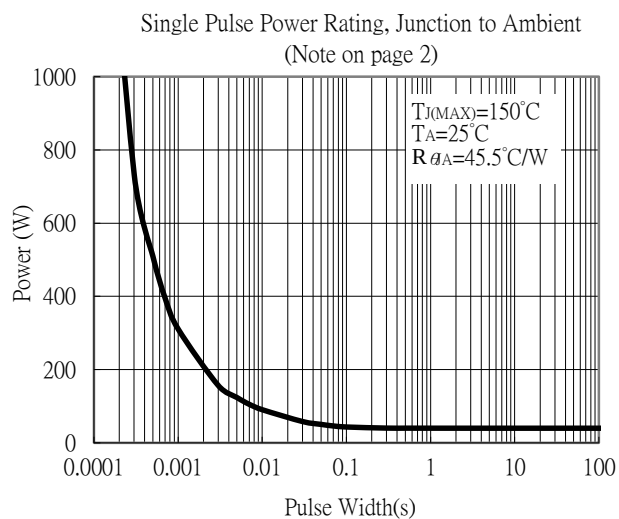
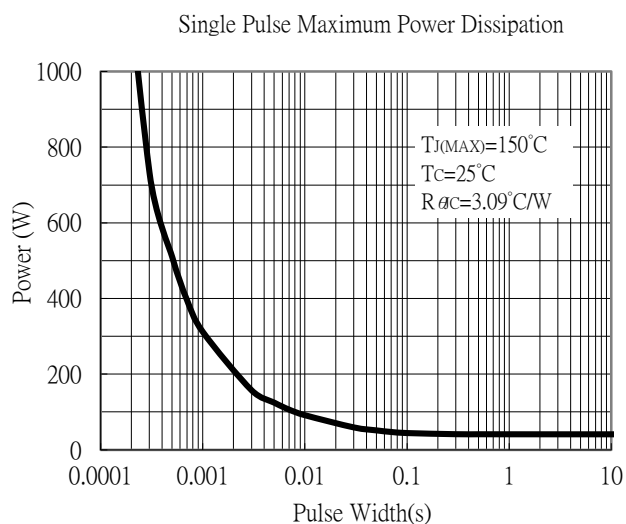
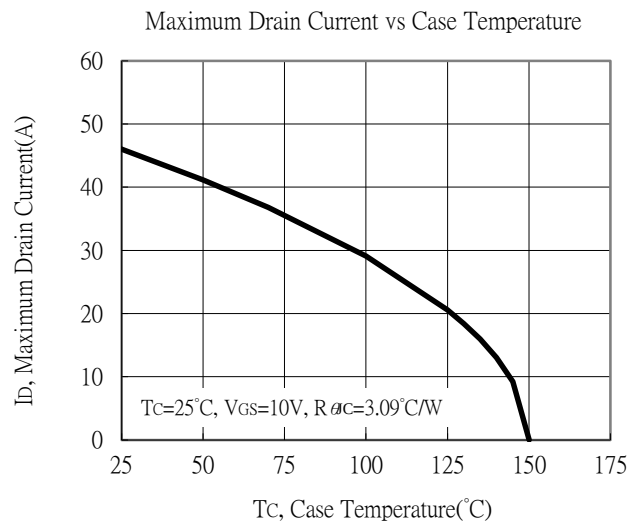
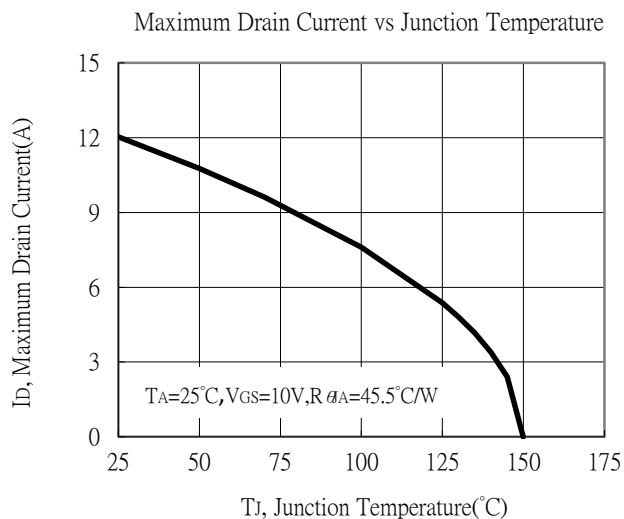
Maximum Safe Operating Area



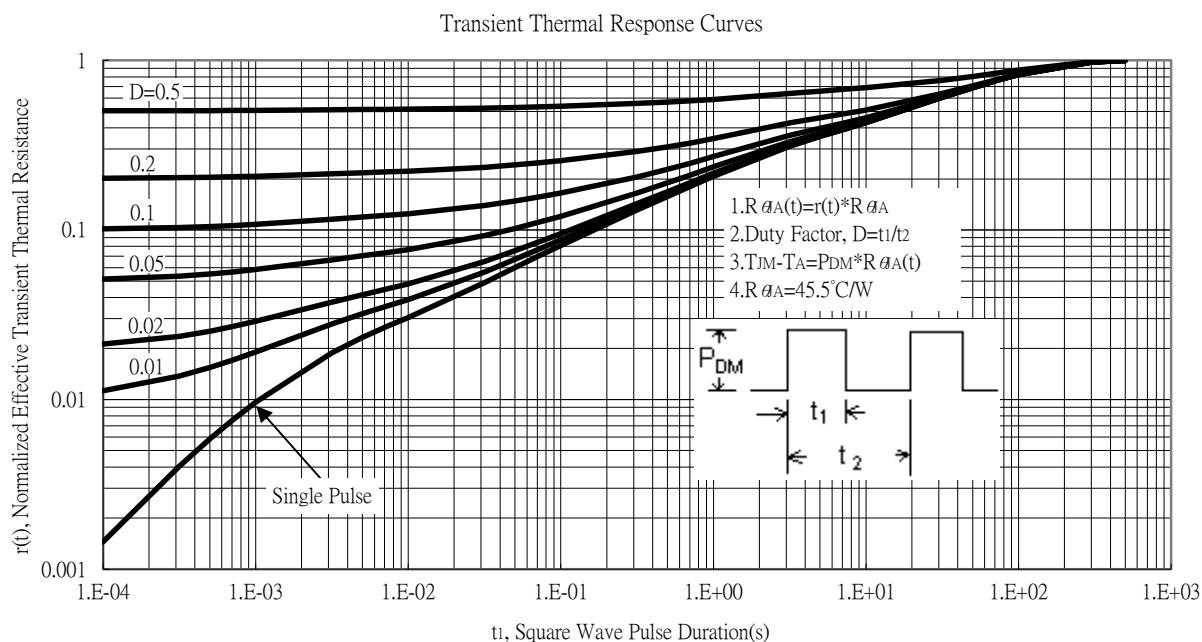
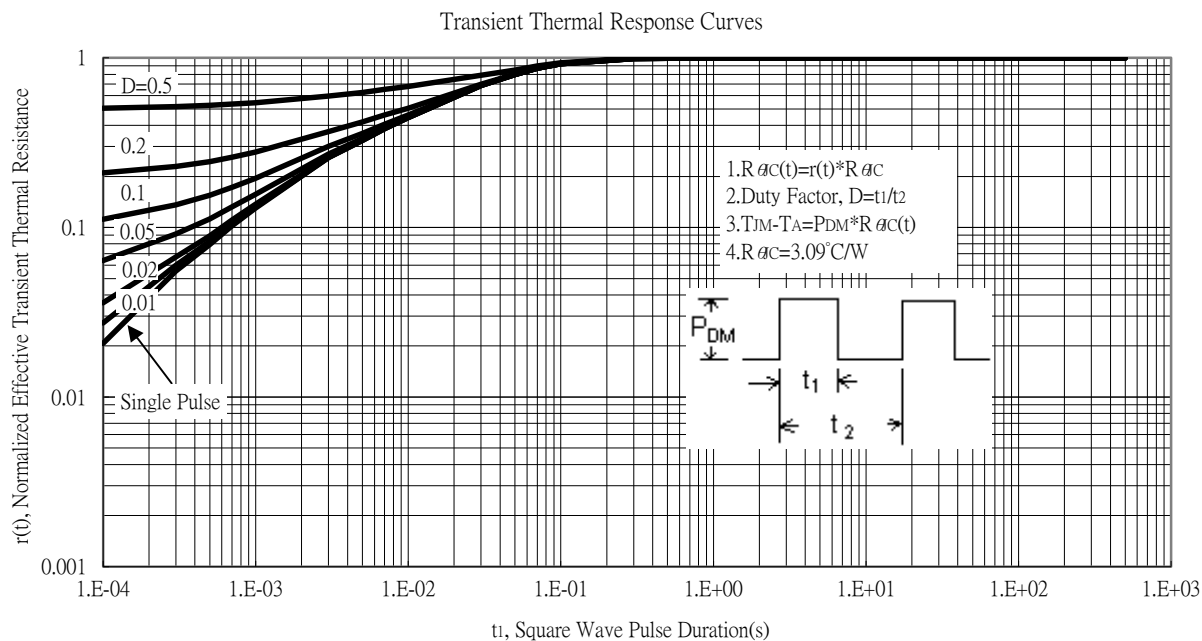
Maximum Safe Operating Area



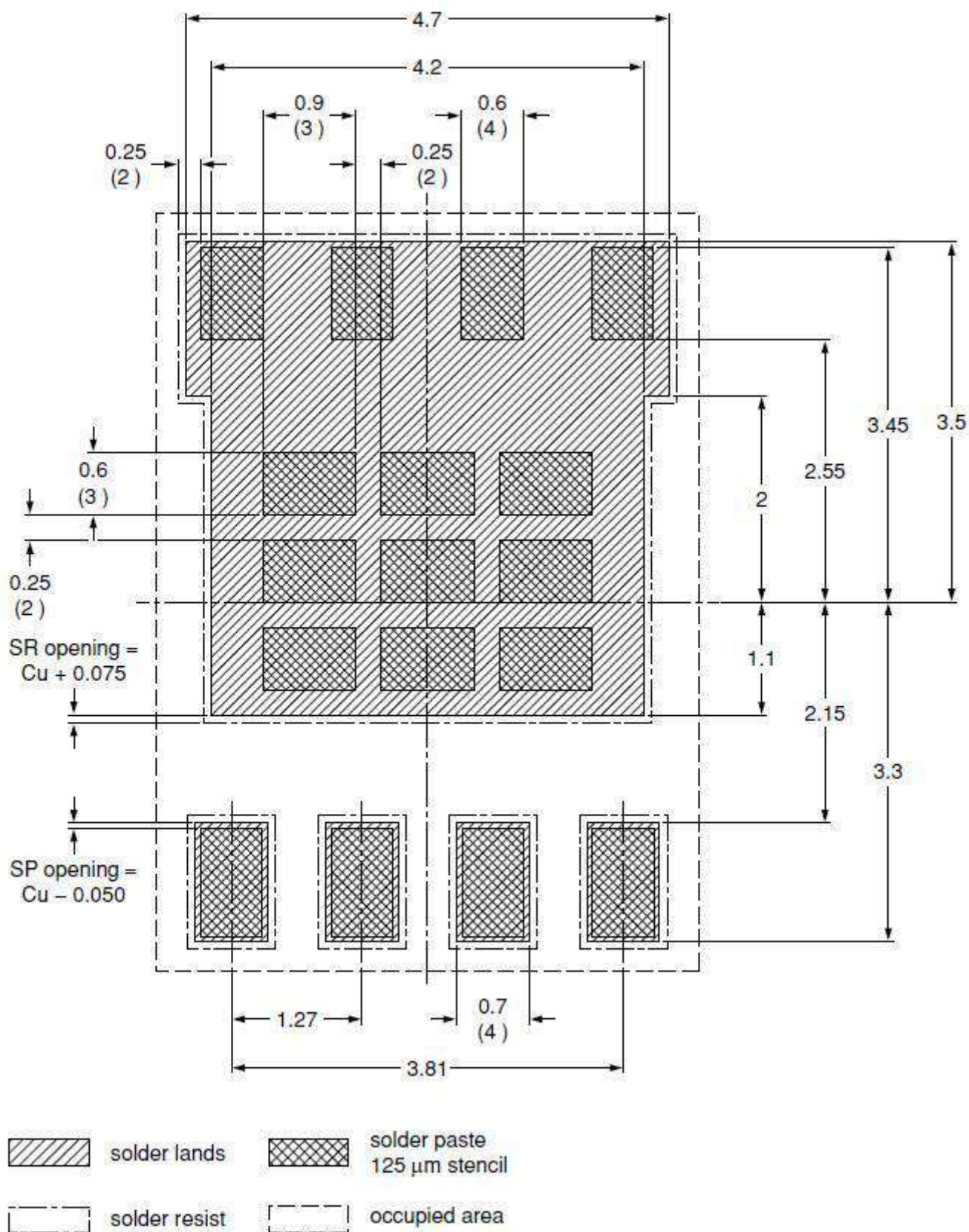
Typical Characteristics (Cont.)



Typical Characteristics (Cont.)

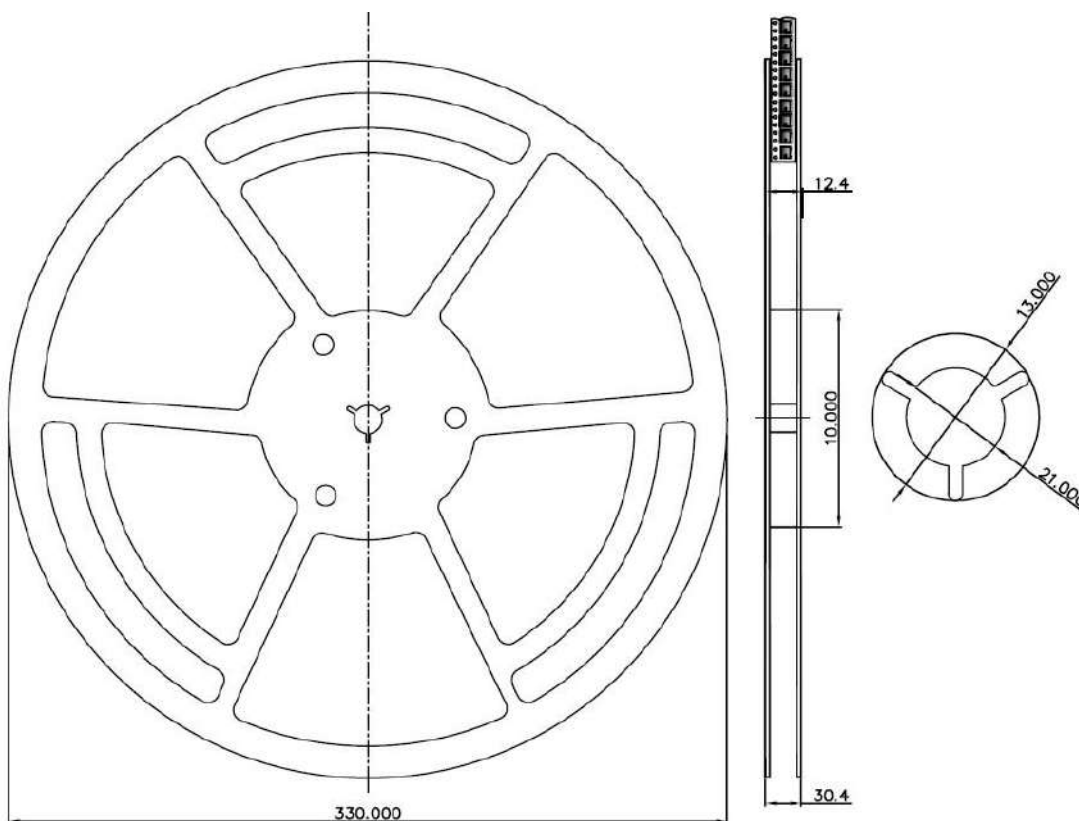


Recommended Soldering Footprint & Stencil Design

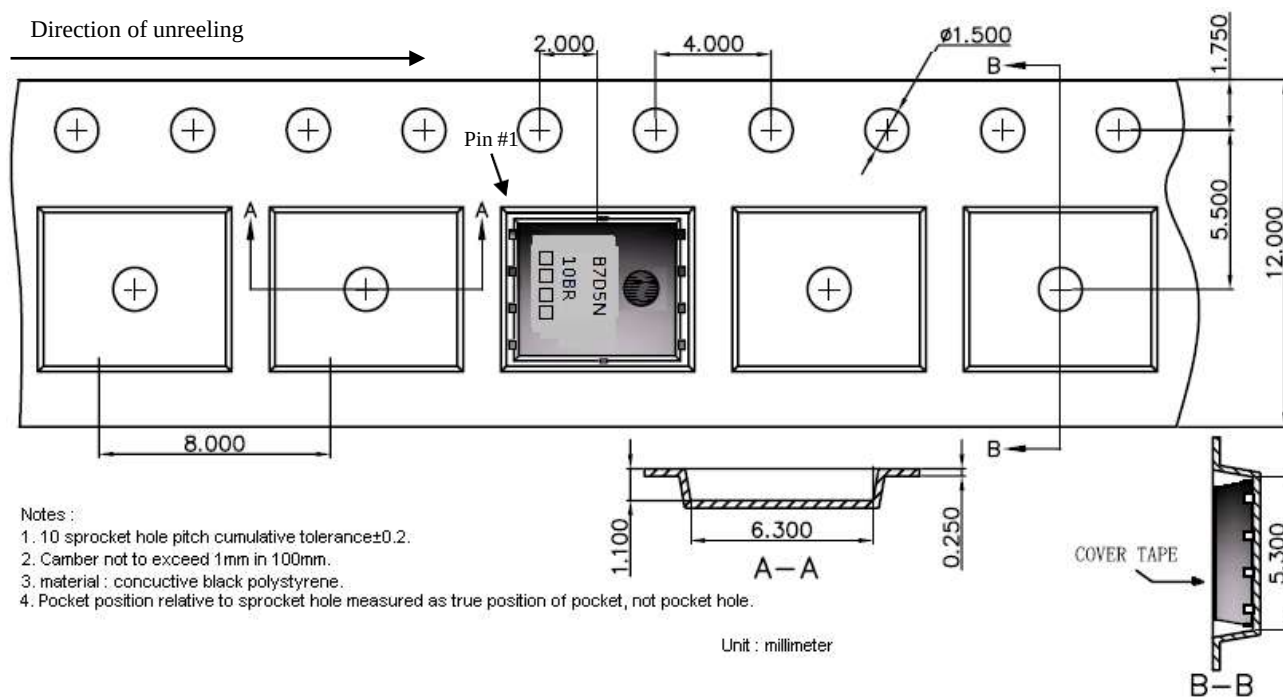


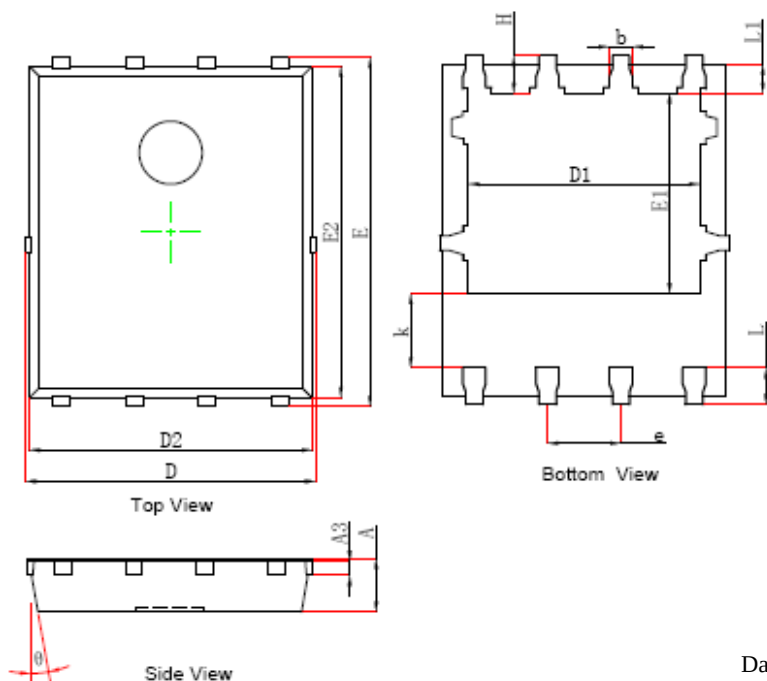
unit : mm

Reel Dimension



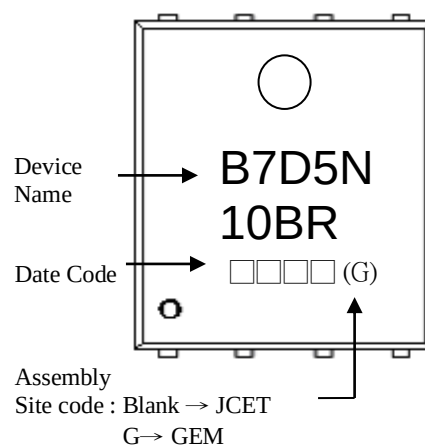
Carrier Tape Dimension





8-Lead DFN5x6 Plastic Package

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

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043	k	1.100	-	0.043	-
A3	0.200	0.300	0.008	0.012	b	0.330	0.510	0.013	0.020
D	4.944	5.096	0.195	0.201	e	1.270	TYP.	0.050	TYP.
E	5.900	6.126	0.232	0.241	L	0.510	0.711	0.020	0.028
D1	3.670	4.110	0.144	0.162	L1	0.310	0.576	0.012	0.023
E1	3.375	3.780	0.133	0.149	H	0.410	0.726	0.016	0.029
D2	4.800	5.000	0.189	0.197	θ	8°	12°	8°	12°
E2	5.674	5.826	0.223	0.229					