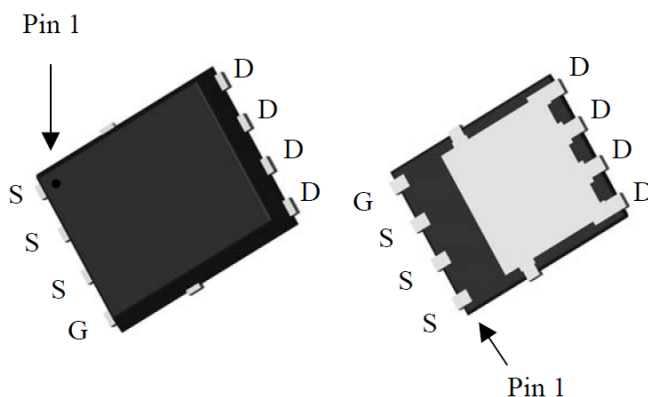


P-Channel Logic Level Enhancement Mode Power MOSFET

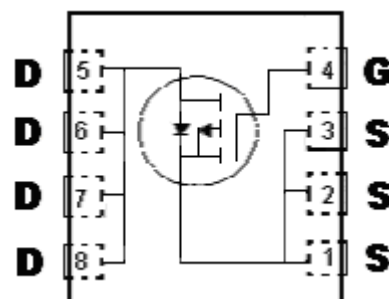
DFN5x6

Features:

- Single Drive Requirement
- Low On-resistance
- Fast Switching Characteristic
- Pb-free lead plating and Halogen-free package



		-60
I_D @ $V_{GS}=10V$, $T_C=25^\circ C$		-13.5
I_D @ $V_{GS}=10V$, $T_A=25^\circ C$		-5
$R_{DS(on)}$ (TYP)	$V_{GS}=-10V$, $I_D=-5A$	56m Ω
	$V_{GS}=-4.5V$, $I_D=-4.5A$	65m Ω



G : Gate D : Drain S : Source

Ordering Information

Device	Package	Shipping
KPRB60P06	DFN5x6 (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}	-60	V
Gate-Source Voltage		V _{GS}	±20	
Continuous Drain Current @ T _C =25°C, V _{GS} =-10V		I _D	-13.5	A
Continuous Drain Current @ T _C =100°C, V _{GS} =-10V			-8.5	
Continuous Drain Current @ T _A =25°C, V _{GS} =-10V		I _{DSM}	-5 *3	
Continuous Drain Current @ T _A =70°C, V _{GS} =-10V			-4 *3	
Pulsed Drain Current		I _{DM}	-30 *1,2	
Avalanche Current		I _{AS}	-16	mJ
Avalanche Energy @ L=1.6mH, I _D =-5A, R _G =25Ω		E _{AS}	20	
Total Power Dissipation	T _C =25°C	P _D	25	W
	T _C =100°C		10	
	T _A =25°C	P _D SM	3.5 *3	
	T _A =70°C		2.2 *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}	5	°C/W
Thermal Resistance, Junction-to-ambient, max	R _{θJA}	36 *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; 85°C/W at steady state.

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

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	-60	-	-	V	V _{GS} =0V, I _D =-250μA
V _{GS(th)}	-1	-1.5	-2.5		V _{DS} = V _{GS} , I _D =-250μA
G _{FS} *1	-	7	-	S	V _{DS} =-15V, I _D =-5A
I _{GSS}	-	-	±100	nA	V _{GS} =±20V
I _{DSS}	-	-	-1	μA	V _{DS} =-48V, V _{GS} =0V
	-	-	-25		V _{DS} =-48V, V _{GS} =0V, T _j =125°C
R _{DS(ON)} *1	-	56	70	mΩ	V _{GS} =-10V, I _D =-5A
	-	65	80		V _{GS} =-4.5V, I _D =-4.5A
Dynamic					
C _{iss}	-	1444	-	pF	V _{DS} =-30V,V _{GS} =0V, f=1MHz
C _{oss}	-	65	-		
Cr _{ss}	-	57	-		

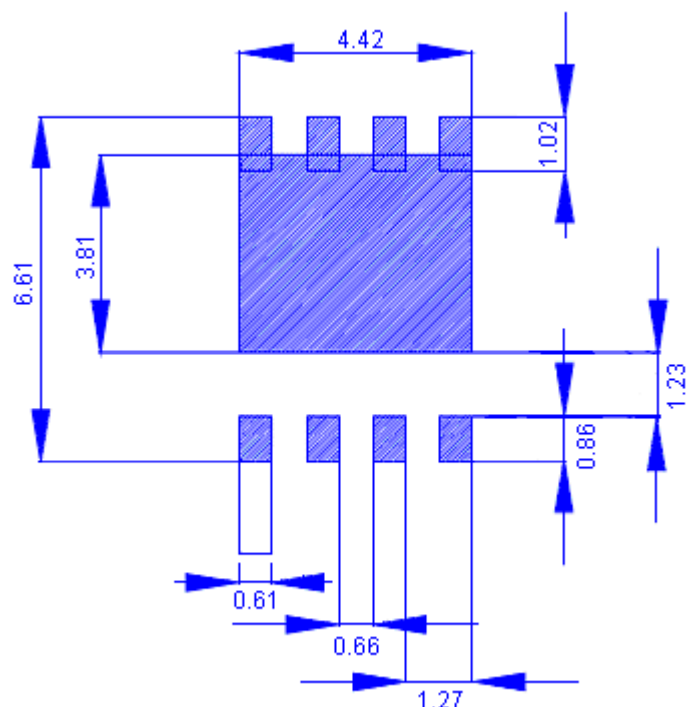
Qg *1, 2	-	26	-	nC	V _{DS} =-30V, V _{GS} =-10V, I _D =-5A
Qgs *1, 2	-	4.8	-		
Qgd *1, 2	-	6.8	-		
t _{d(ON)} *1, 2	-	15	-	ns	V _{DS} =-30V, I _D =-1A, V _{GS} =-10V, R _G =6Ω
tr *1, 2	-	11	-		
t _{d(OFF)} *1, 2	-	55	-		
t _f *1, 2	-	30	-		
Source-Drain Diode					
I _S *1	-	-	-5	A	
I _{SM} *3	-	-	-20		
V _{SD} *1	-	-0.79	-1	V	I _S =-2.9A, V _{GS} =0V
trr	-	40	-	ns	I _F =-5A, dI _F /dt=100A/μs
Qrr	-	30	-	nC	

Note : *1.Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

*2.Independent of operating temperature

*3.Pulse width limited by maximum junction temperature.

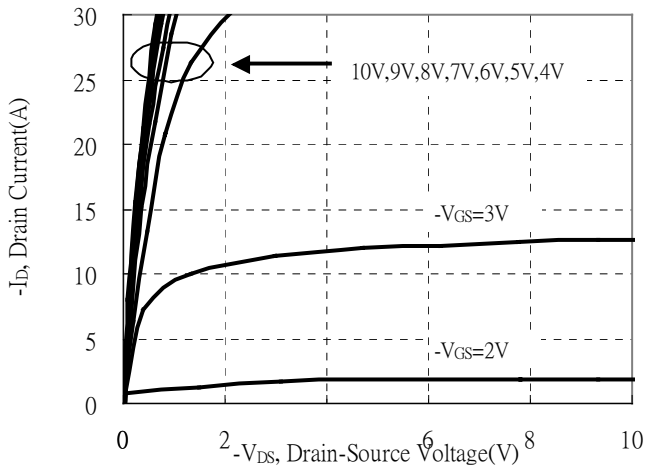
Recommended Soldering Footprint



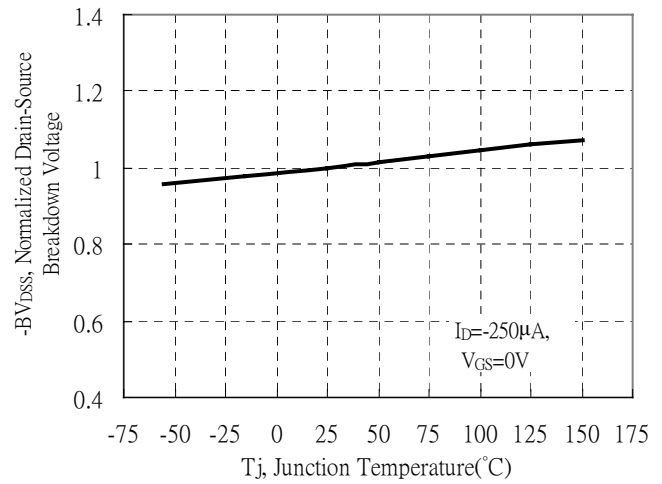
unit : mm

Typical Characteristics

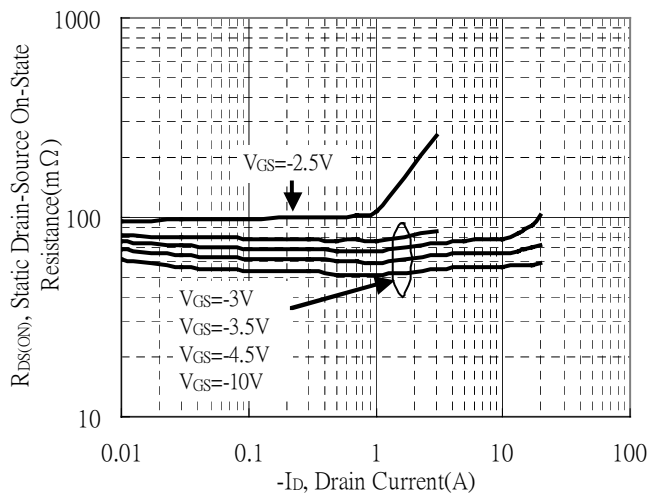
Typical Output Characteristics



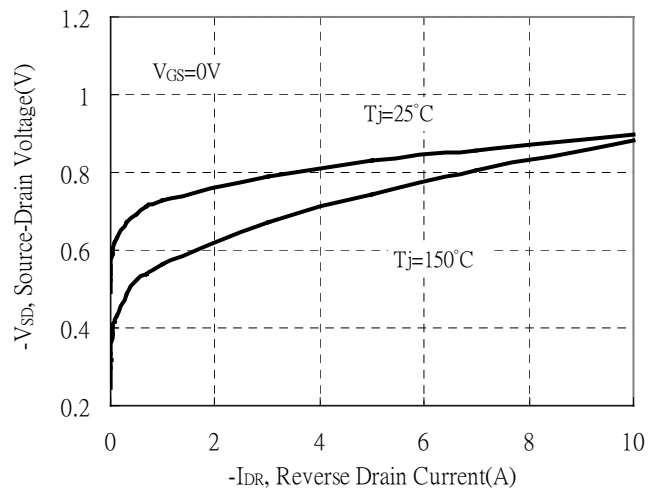
Breakdown Voltage vs Ambient Temperature



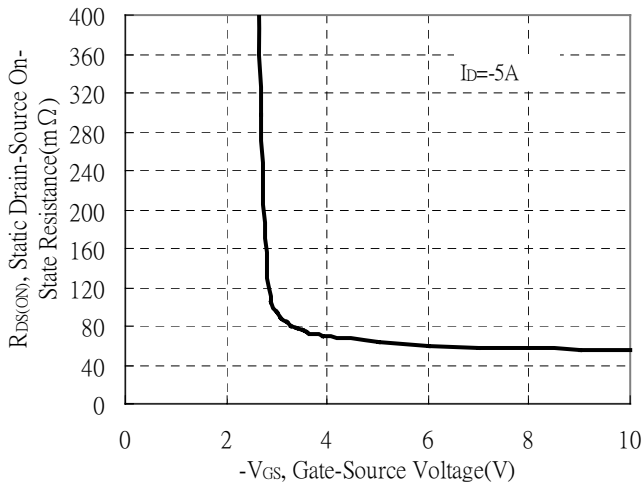
Static Drain-Source On-State resistance vs Drain Current



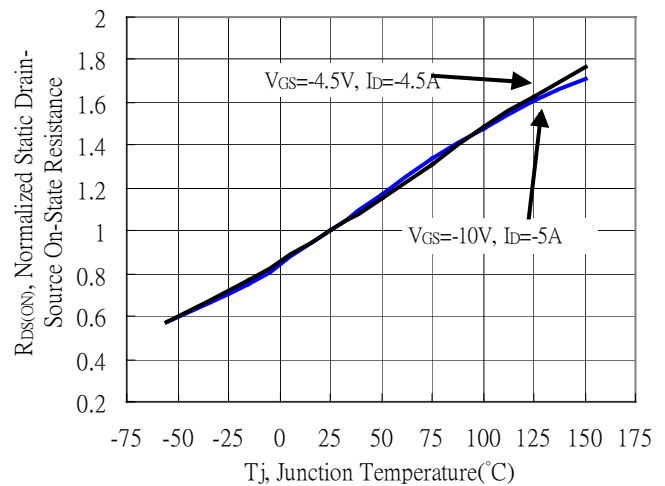
Reverse Drain Current vs Source-Drain Voltage



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

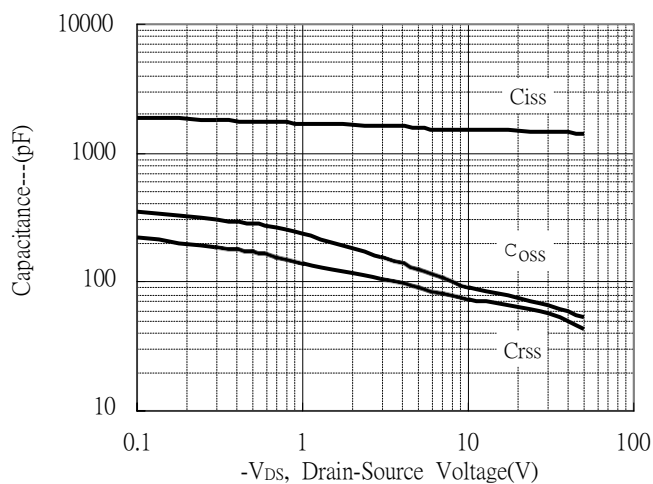


Drain-Source On-State Resistance vs Junction Temperature

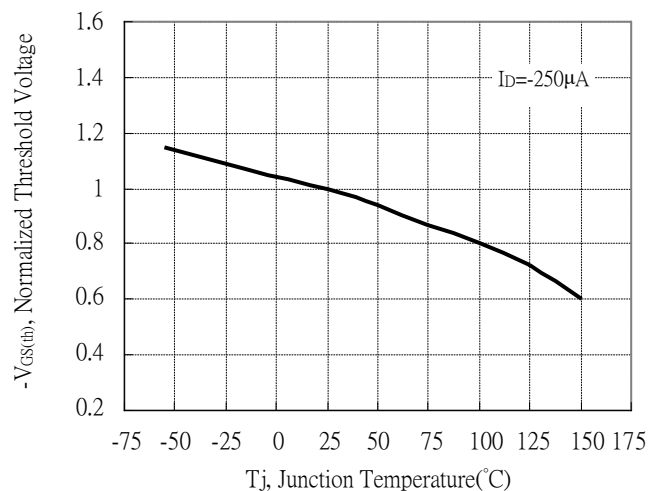


Typical Characteristics(Cont.)

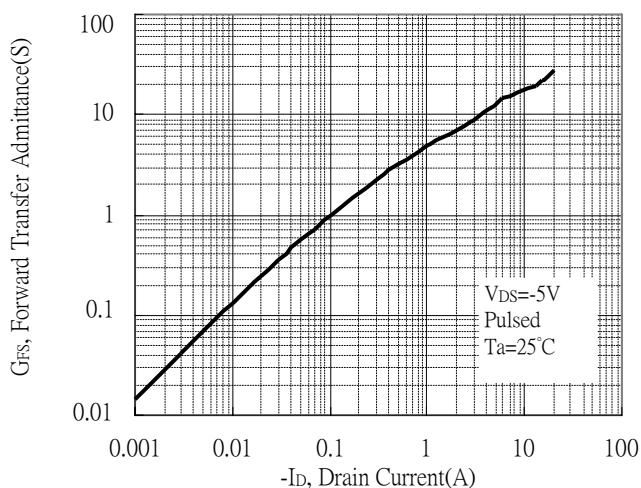
Capacitance vs Drain-to-Source Voltage



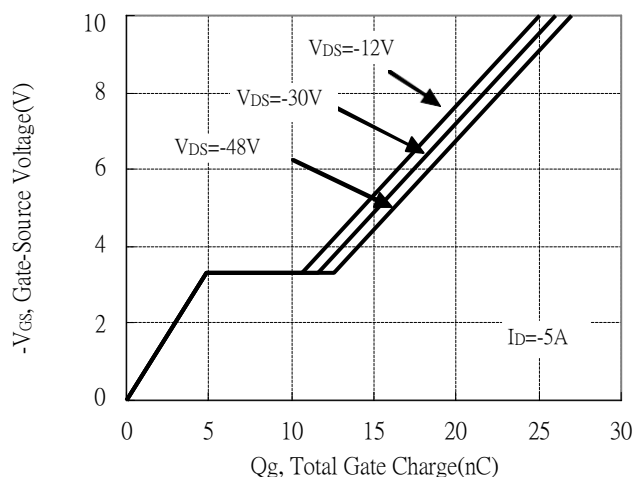
Threshold Voltage vs Junction Temperature



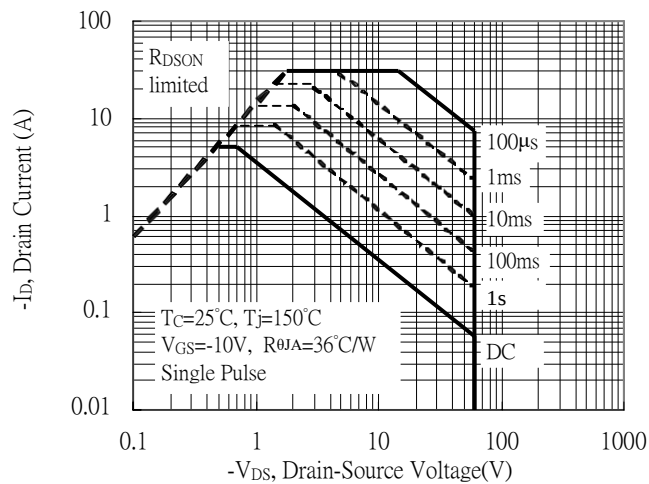
Forward Transfer Admittance vs Drain Current



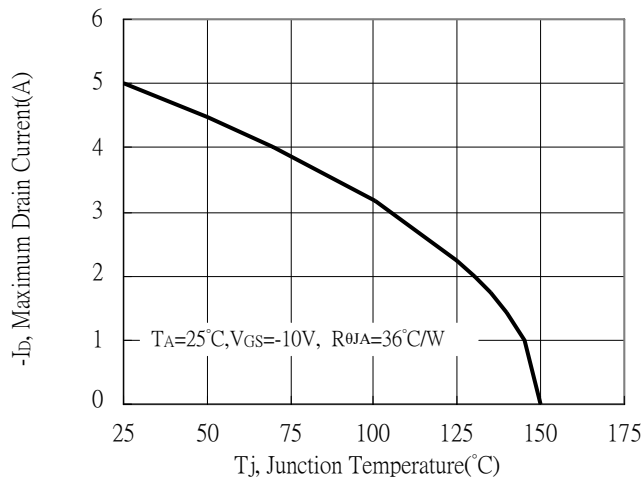
Gate Charge Characteristics



Maximum Safe Operating Area

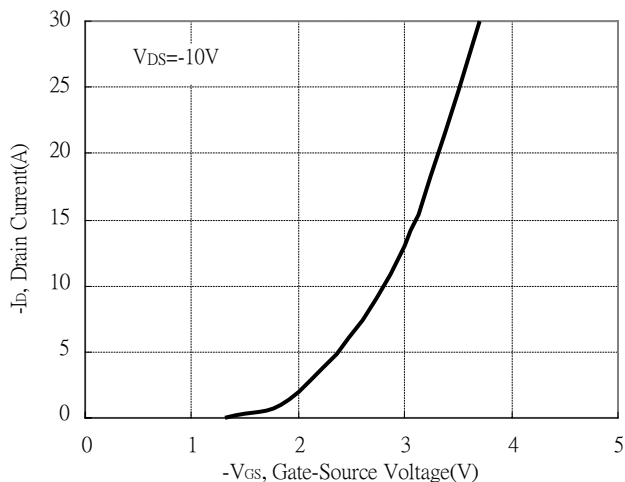


Maximum Drain Current vs Junction Temperature

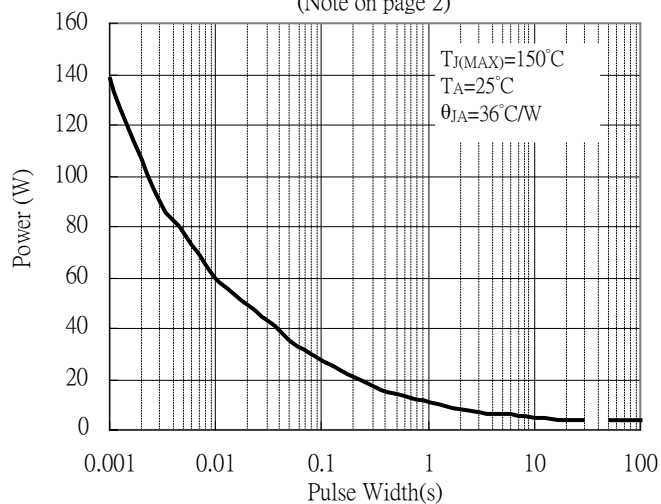


Typical Characteristics(Cont.)

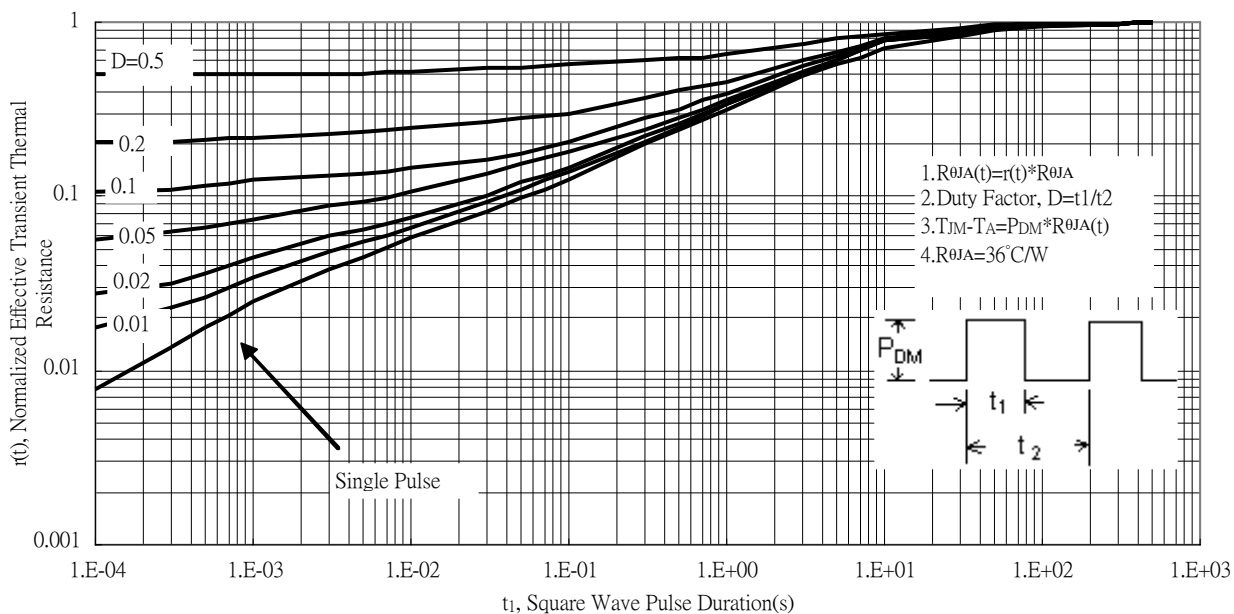
Typical Transfer Characteristics



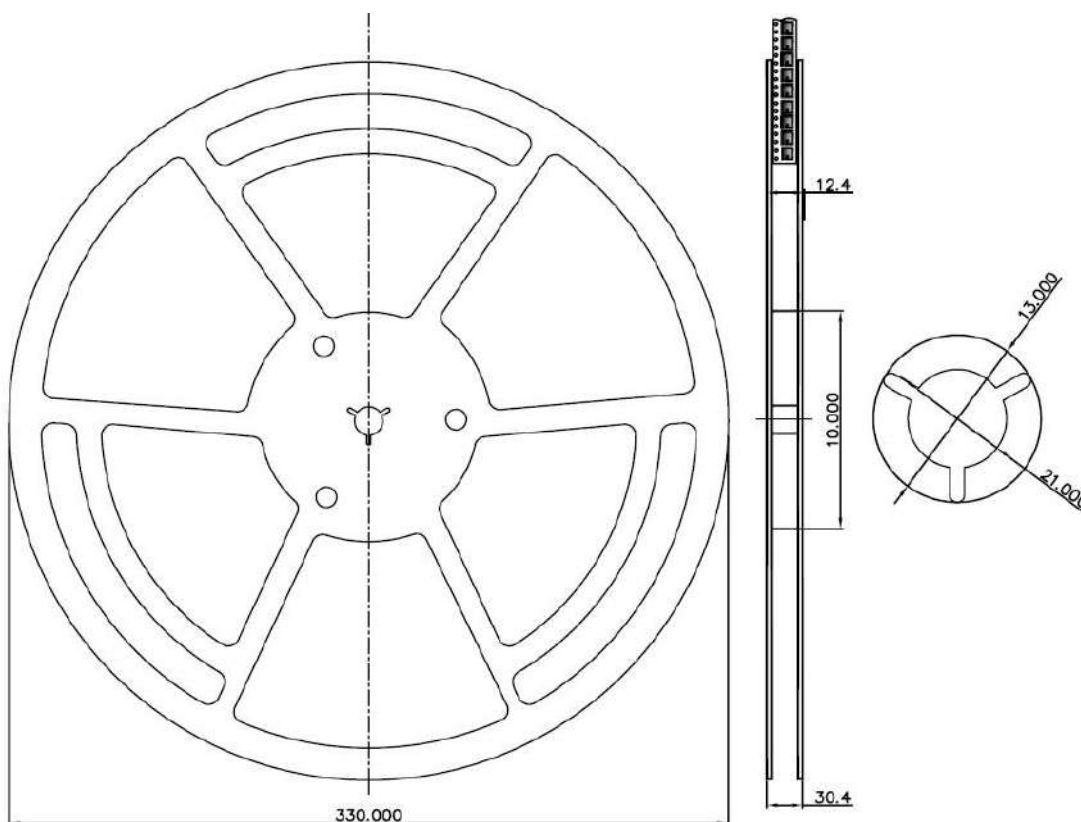
Single Pulse Power Rating, Junction to Ambient
 (Note on page 2)



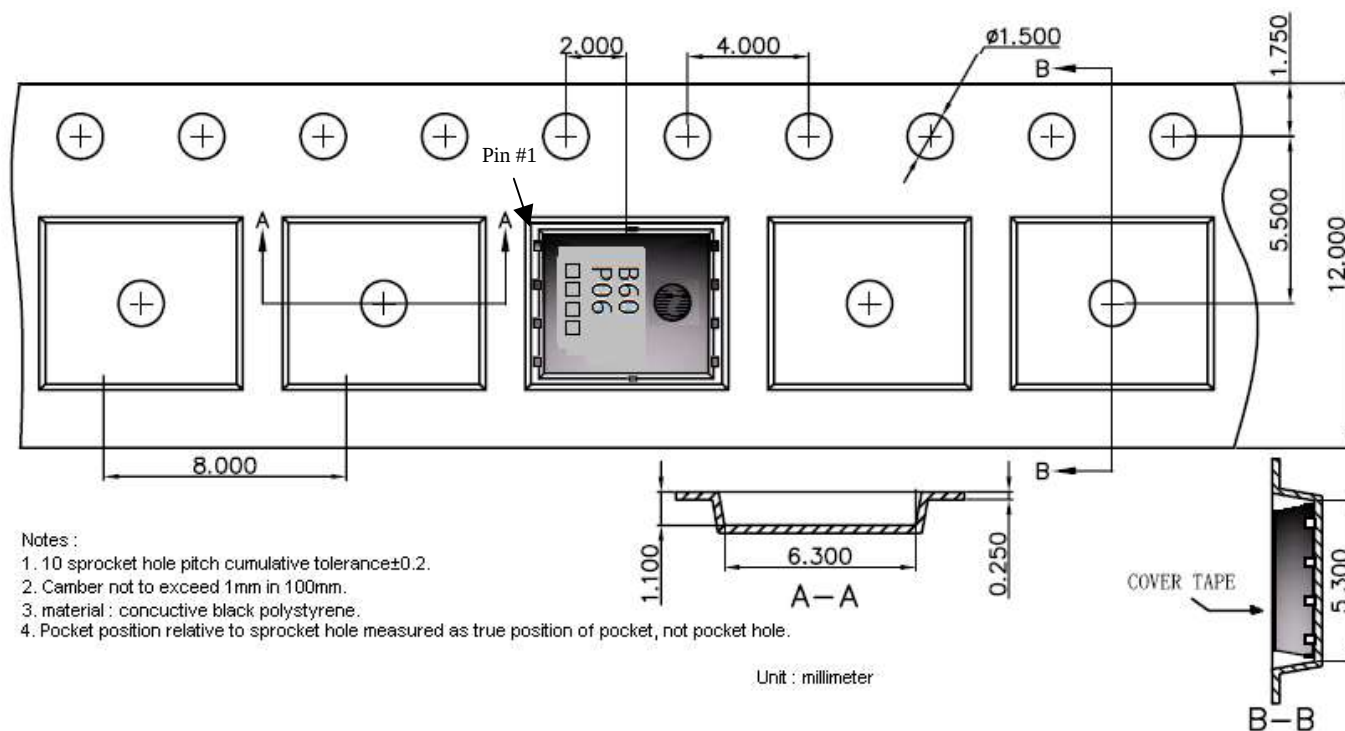
Transient Thermal Response Curves



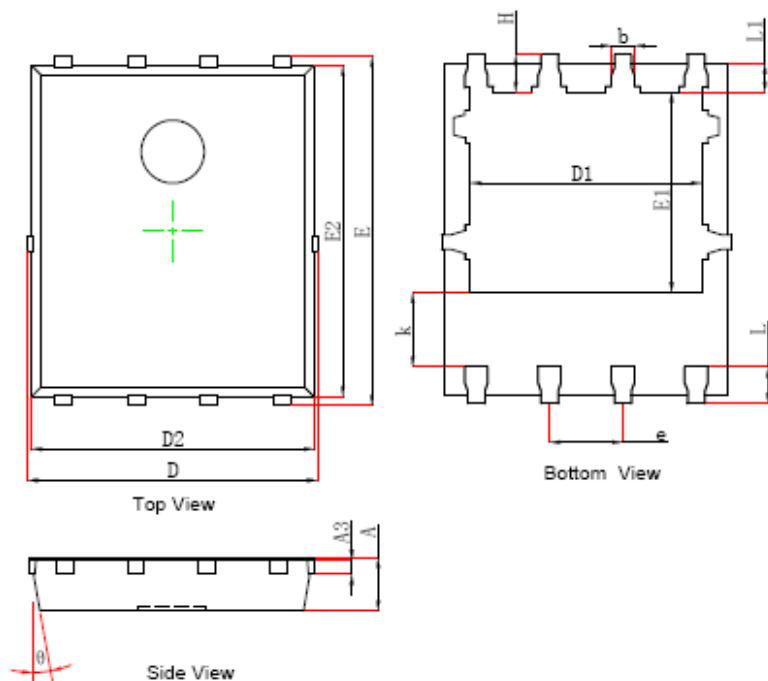
Reel Dimension



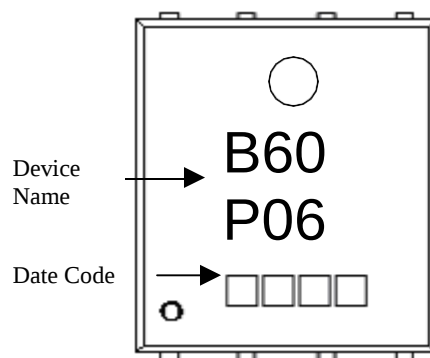
Carrier Tape Dimension



DFN5x6 Dimension



Marking :



8-Lead DFN5x6 Plastic Package

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.900	1.000	0.035	0.039	k	1.190	1.390	0.047	0.055
A3	0.254	REF	0.010	REF	b	0.350	0.450	0.014	0.018
D	4.944	5.096	0.195	0.201	e	1.270	TYP.	0.050	TYP.
E	5.974	6.126	0.235	0.241	L	0.559	0.711	0.022	0.028
D1	3.910	4.110	0.154	0.162	L1	0.424	0.576	0.017	0.023
E1	3.375	3.575	0.133	0.141	H	0.574	0.726	0.023	0.029
D2	4.824	4.976	0.190	0.196	θ	10°	12°	10°	12°
E2	5.674	5.826	0.223	0.229					