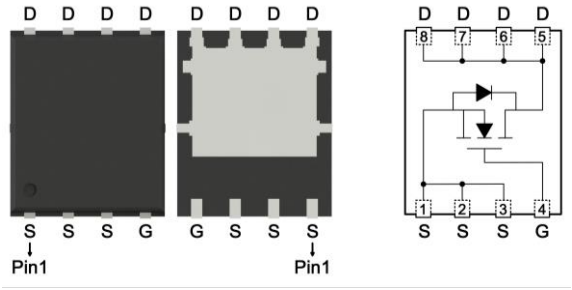
Product Summary

BV_{DSS}	150	V
$R_{DS(ON)}$ typ. @ V_{GS}=10V, I_D=10A	10	mΩ
$R_{DS(ON)}$ typ. @ V_{GS}=4.5V, I_D=8A	13	
I_D @ V_{GS}=10V, T_C=25°C	57	A
I_D @ V_{GS}=10V, T_A=25°C	10	

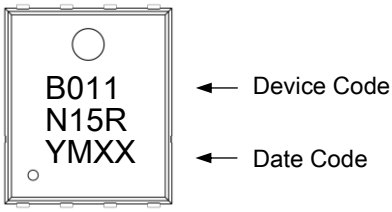
Features

- Low On Resistance
- Low Gate Charge
- Fast Switching Characteristic
- Pb-free lead plating and halogen-free

DFN5×6



Marking



YMXX: Date Code Marking

Y: Year Code, the last digit of Christian year

M: Month Code

A: Jan	B: Feb	C: Mar	D: Apr	E: May	F: Jun
G: Jul	H: Aug	J: Sep	K: Oct	L: Nov	M: Dec

XX: Production Serial Number, 01~99

Ordering Information

Device	Package	Shipping
MTB011N15RH8-0-T6-G	DFN5×6	3000pcs / Tape & Reel

0: Product rank, zero for no rank products.

T6: Packing spec, T6 : 3000pcs / tape & reel, 13" reel

G: Environment friendly grade: S for RoHS compliant products, G for RoHS compliant and green compound products.

Absolute Maximum Ratings (T_A=25°C)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current @ V_{GS}=10V, T_C=25°C	*a	I_D	57	A
Continuous Drain Current @ V_{GS}=10V, T_C=100°C	*a		36	
Continuous Drain Current @ V_{GS}=10V, T_A=25°C	*b		10	
Continuous Drain Current @ V_{GS}=10V, T_A=70°C	*b		8	
Pulsed Drain Current	*c	I_{DM}	228	
Continuous Body Diode Forward Current @ T_C=25°C	*a	I_S	57	
Pulsed Body Diode Forward Current @ T_C=25°C	*a	I_{SM}	228	
Avalanche Current @ L=0.1mH		I_{AS}	32	
Avalanche Energy @ L=0.5mH		E_{AS}	110	mJ
Total Power Dissipation	T_C=25°C *a	P_D	96	W
	T_C=100°C *a		34	
	T_A=25°C *b		2.8	
	T_A=70°C *b		1.8	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55~+150	°C
Steady State Thermal Resistance, Junction-to-Case		$R_{\theta JC}$	1.3	°C/W
Steady State Thermal Resistance, Junction-to-Ambient	*b	$R_{\theta JA}$	45	

Electrical Characteristics (T_A=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	150	-	-	V	V_{GS}=0V, I_D=250μA
$V_{GS(th)}$	1	-	2.5		V_{DS}=V_{GS}, I_D=250μA
G_{FS}	-	29	-	S	V_{DS}=10V, I_D=10A
I_{GSS}	-	-	±100	nA	V_{GS}=±20V, V_{DS}=0V
I_{DSS}	-	-	1	μA	V_{DS}=120V, V_{GS}=0V
$R_{DS(ON)}$	-	10	13	mΩ	V_{GS}=10V, I_D=10A
	-	13	18		V_{GS}=4.5V, I_D=8A
Dynamic					
C_{iss}	-	4330	-	pF	V_{DS}=75V, V_{GS}=0V, f=1MHz
C_{oss}	-	270	-		
C_{rss}	-	40	-		
R_g	-	1	-	Ω	f=1MHz
Q_g *d,e	-	43	-	nC	V_{DS}=75V, I_D=10A, V_{GS}=4.5V
Q_g *d,e	-	82	-		V_{DS}=75V, I_D=10A, V_{GS}=10V
Q_{gs} *d,e	-	14	-		
Q_{gd} *d,e	-	19	-		
$t_{d(ON)}$ *d,e	-	26	-	ns	V_{DS}=75V, I_D=10A, V_{GS}=10V, R_{GS}=1Ω
tr *d,e	-	23	-		
$t_{d(OFF)}$ *d,e	-	81	-		
t_f *d,e	-	13	-		
Source-Drain Diode					
V_{SD} *d	-	0.79	1.2	V	I_S=10A, V_{GS}=0V
t_{rr}	-	72	-	ns	I_F=10A, di/dt=100A/μs
Q_{rr}	-	220	-	nC	

Note:

*a. 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.

*b. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz copper, in a still air environment with T_A=25°C. The power dissipation P_D is based on $R_{\theta JA}$ and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.

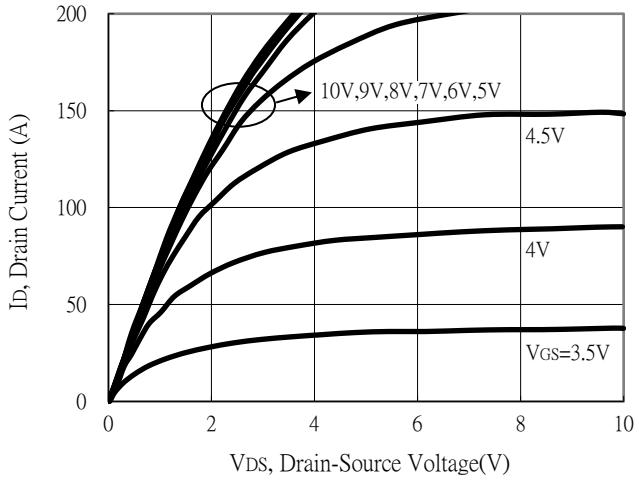
*c. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C. Ratings are based on low frequency and low duty cycles to keep initial T_J=25°C.

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

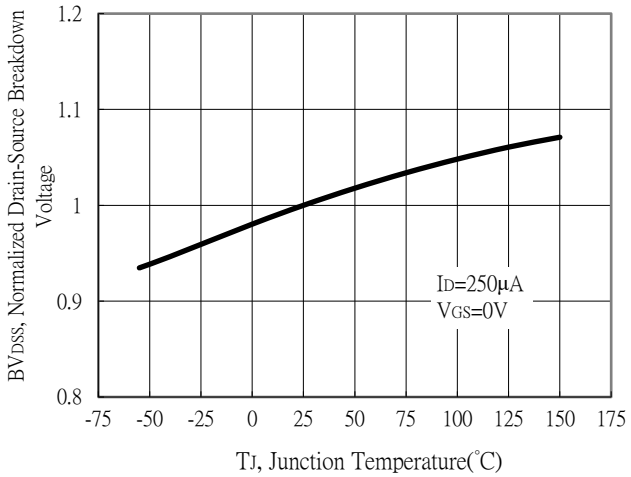
*e. Independent of operating temperature.

Typical Characteristics

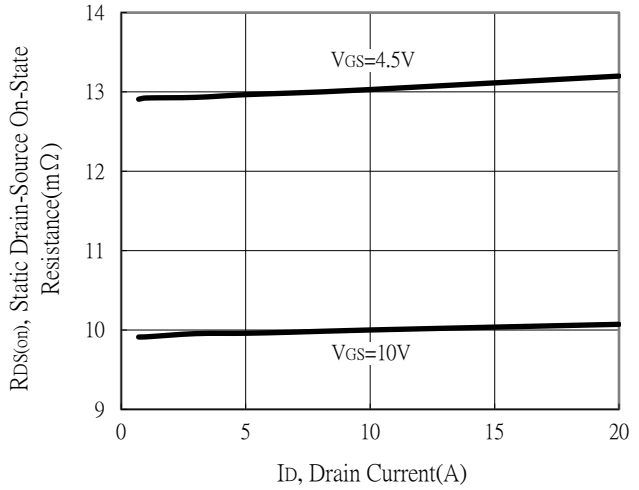
Typical Output Characteristics



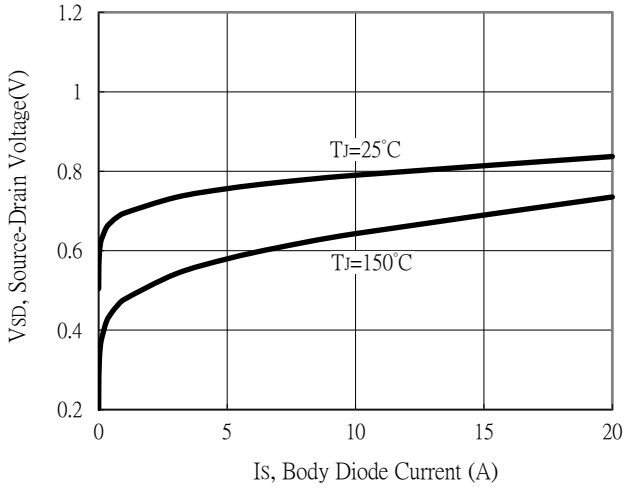
Breakdown Voltage vs Ambient Temperature



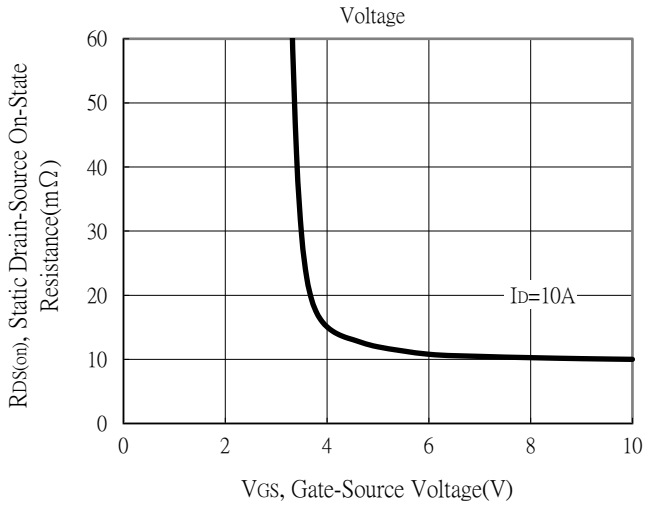
Static Drain-Source On-State resistance vs Drain Current



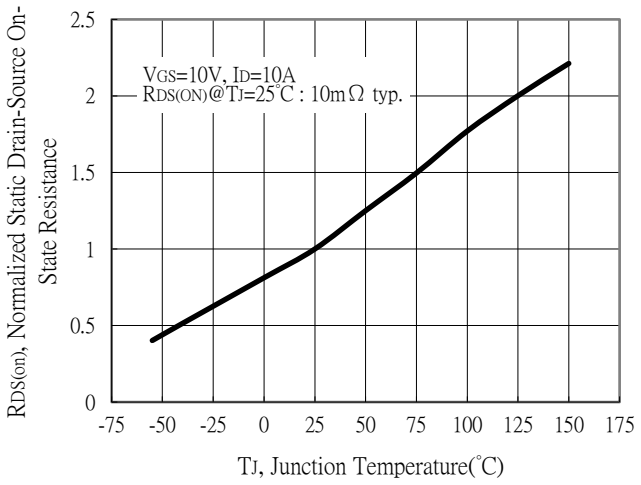
Body Diode Current vs Source-Drain Voltage



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

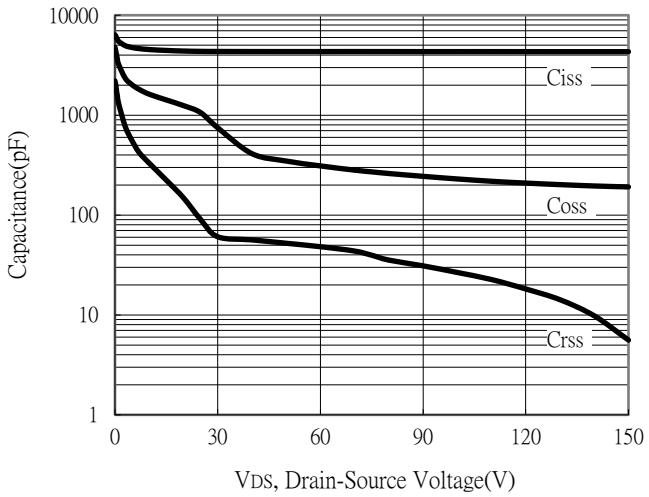


Drain-Source On-State Resistance vs Junction Temperature

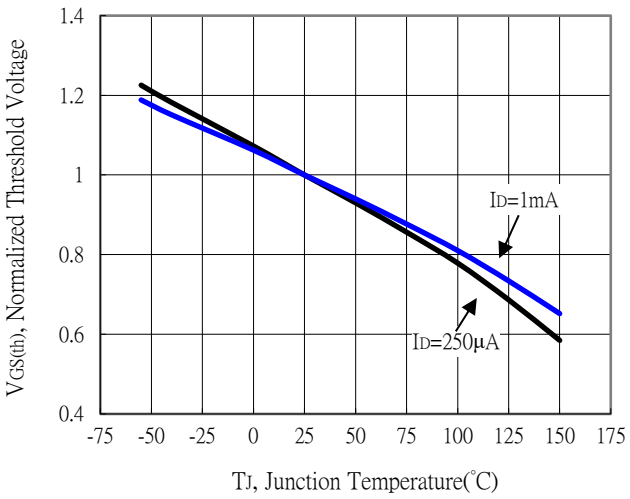


Typical Characteristics

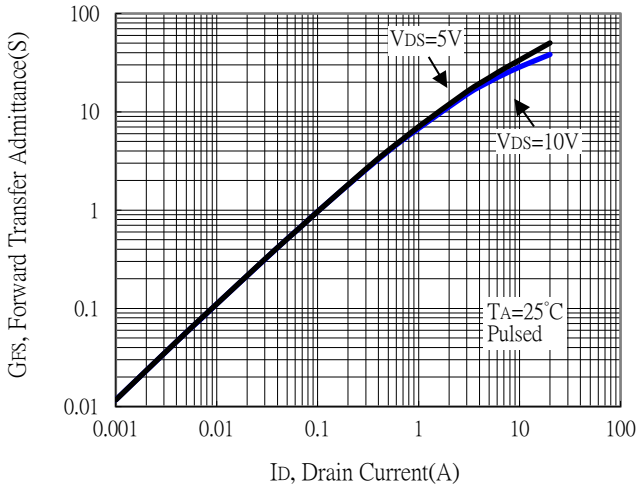
Capacitance vs Drain-to-Source Voltage



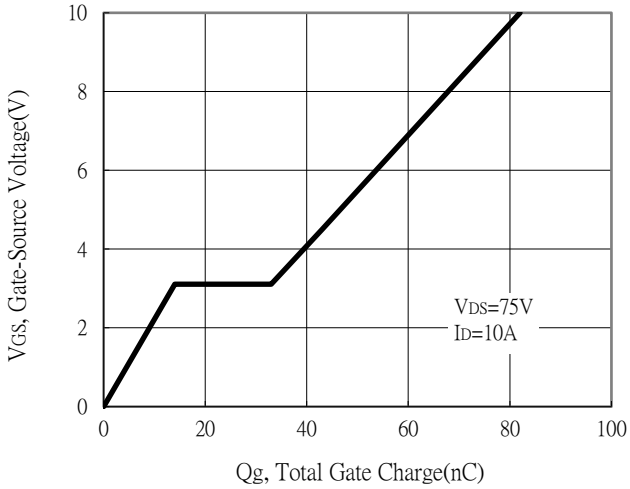
Threshold Voltage vs Junction Temperature



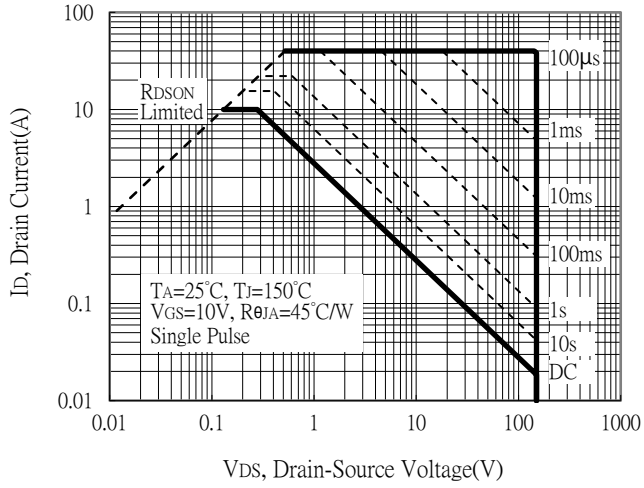
Forward Transfer Admittance vs Drain Current



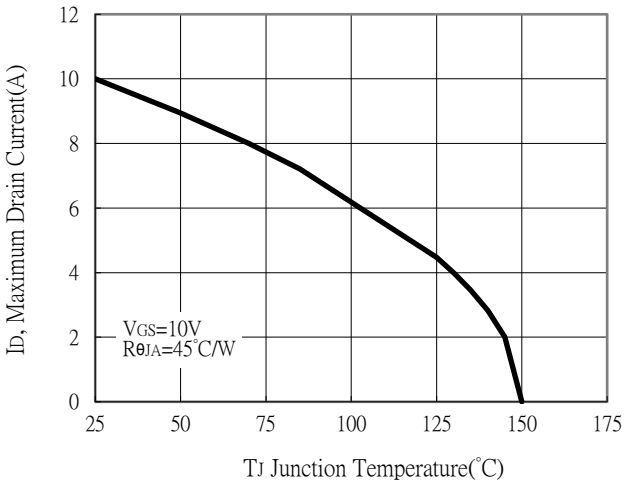
Gate Charge Characteristics



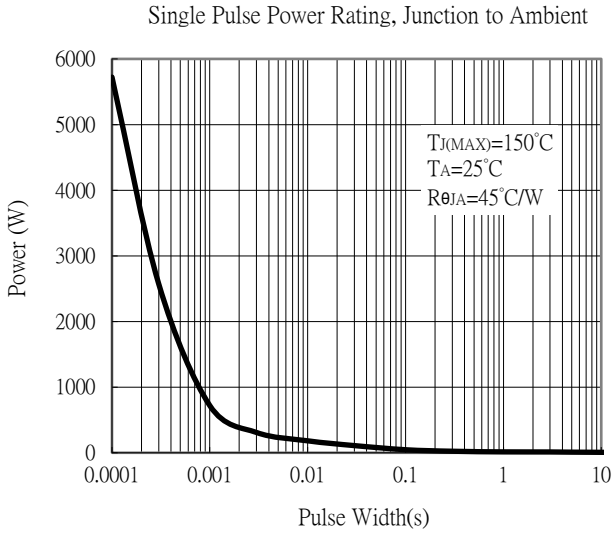
Maximum Safe Operating Area

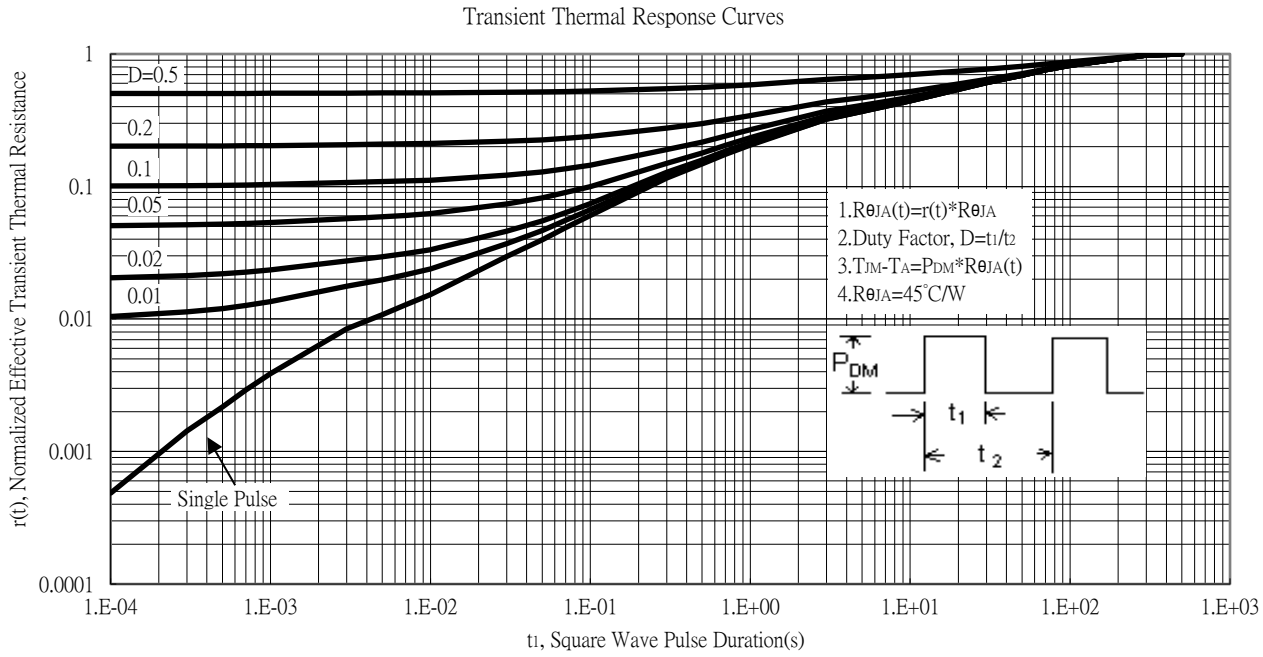


Maximum Drain Current vs Junction Temperature

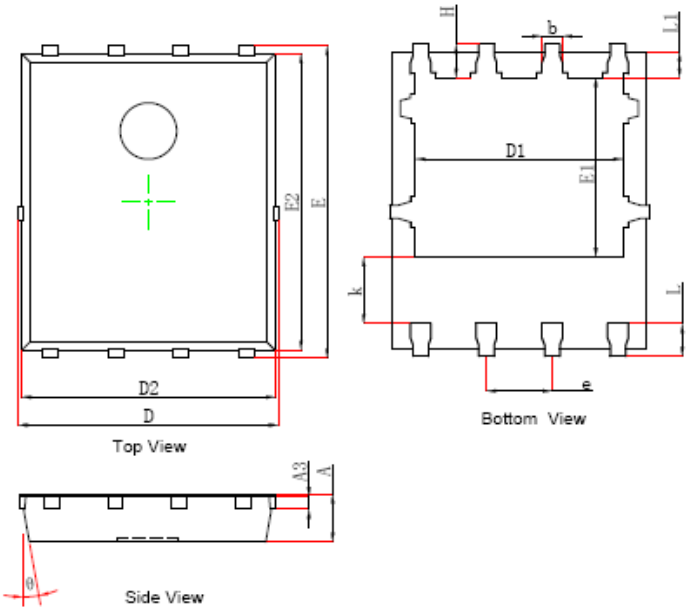


Typical Characteristics

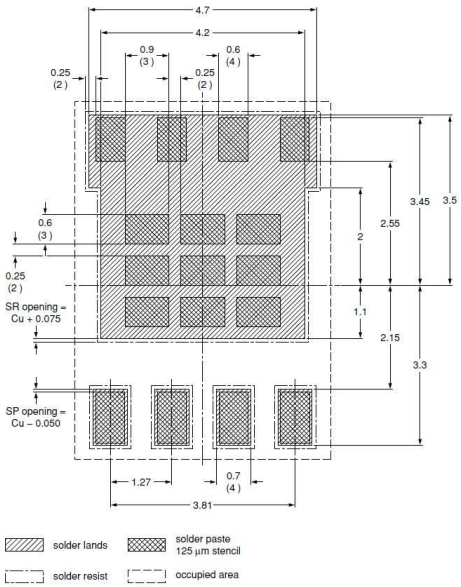




DFN5×6 Dimension



8-Lead DFN5×6 Plastic Package
CYS Package Code: H8



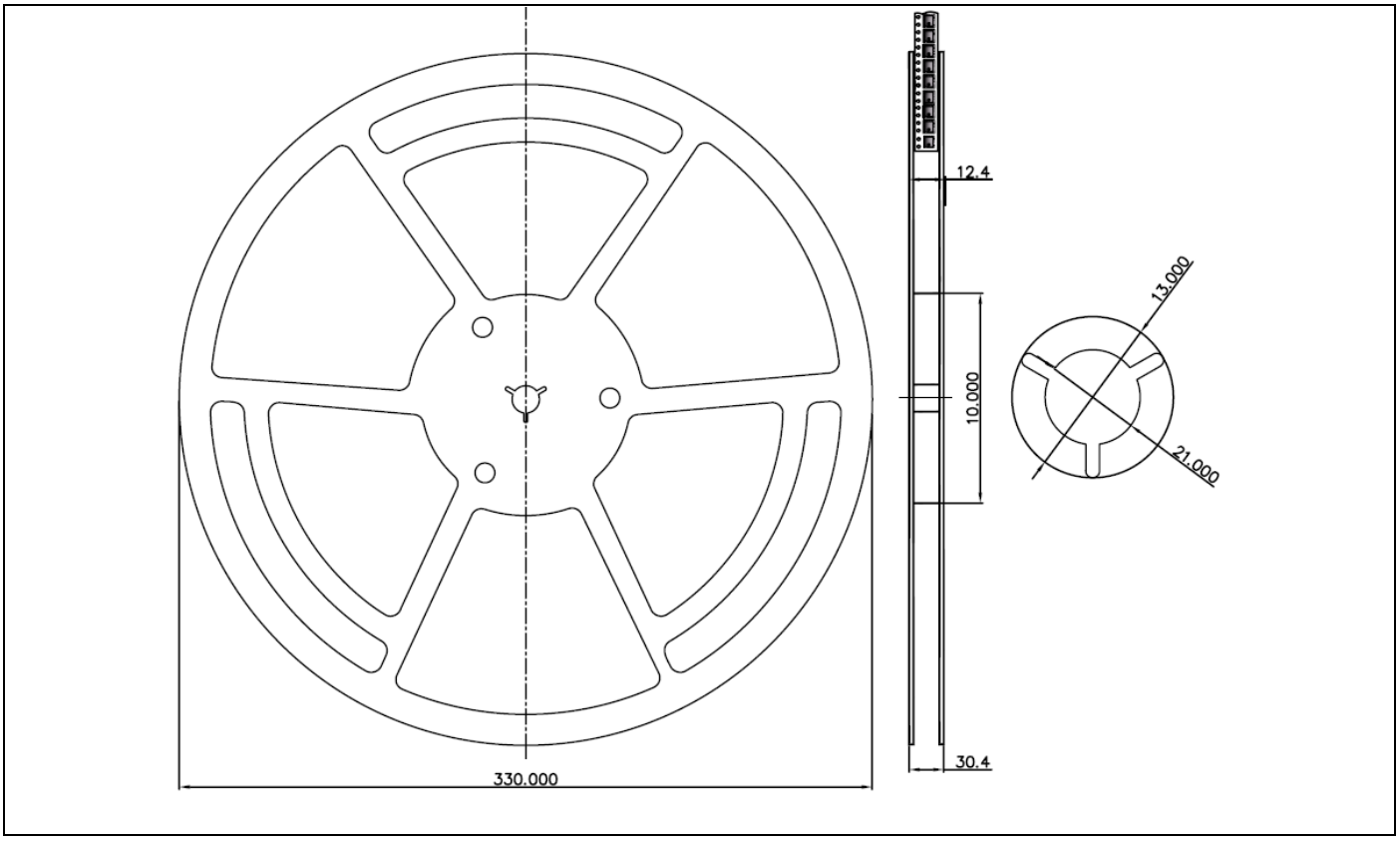
Recommended Soldering Footprint

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.035	0.039	0.900	1.000	k	0.047	0.055	1.190	1.390
A3	0.010	REF.	0.254	REF.	b	0.014	0.018	0.350	0.450
D	0.195	0.201	4.944	5.096	e	0.050	TYP.	1.270	TYP.
E	0.235	0.241	5.974	6.126	L	0.020	0.028	0.559	0.711
D1	0.154	0.162	3.910	4.110	L1	0.017	0.023	0.424	0.576
E1	0.133	0.141	3.375	3.575	H	0.023	0.029	0.574	0.726
D2	0.190	0.196	4.824	4.976	θ	8°	12°	8°	12°
E2	0.223	0.229	5.674	5.826					

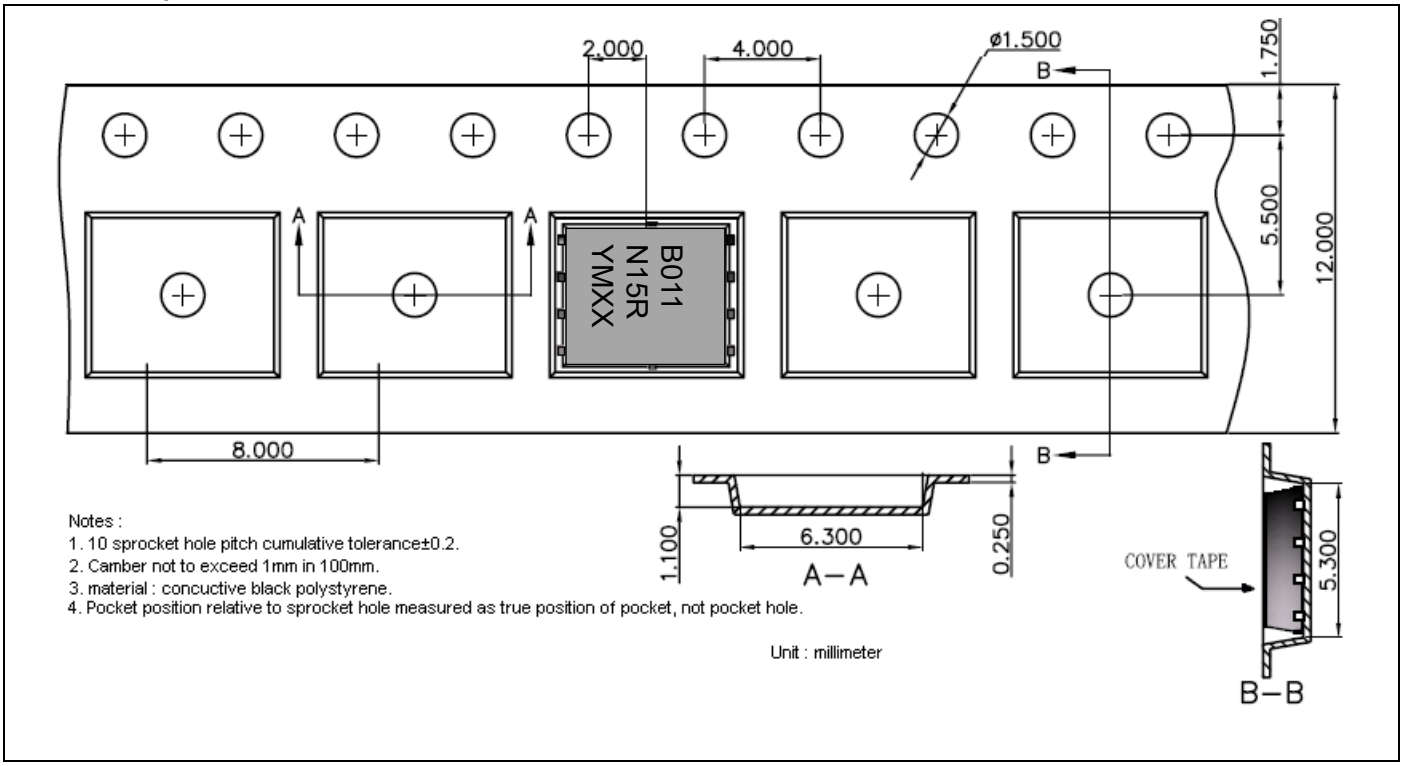
Note:
- Controlling dimension: millimeters.
- Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
- If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:
- Lead: pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

Reel Dimension



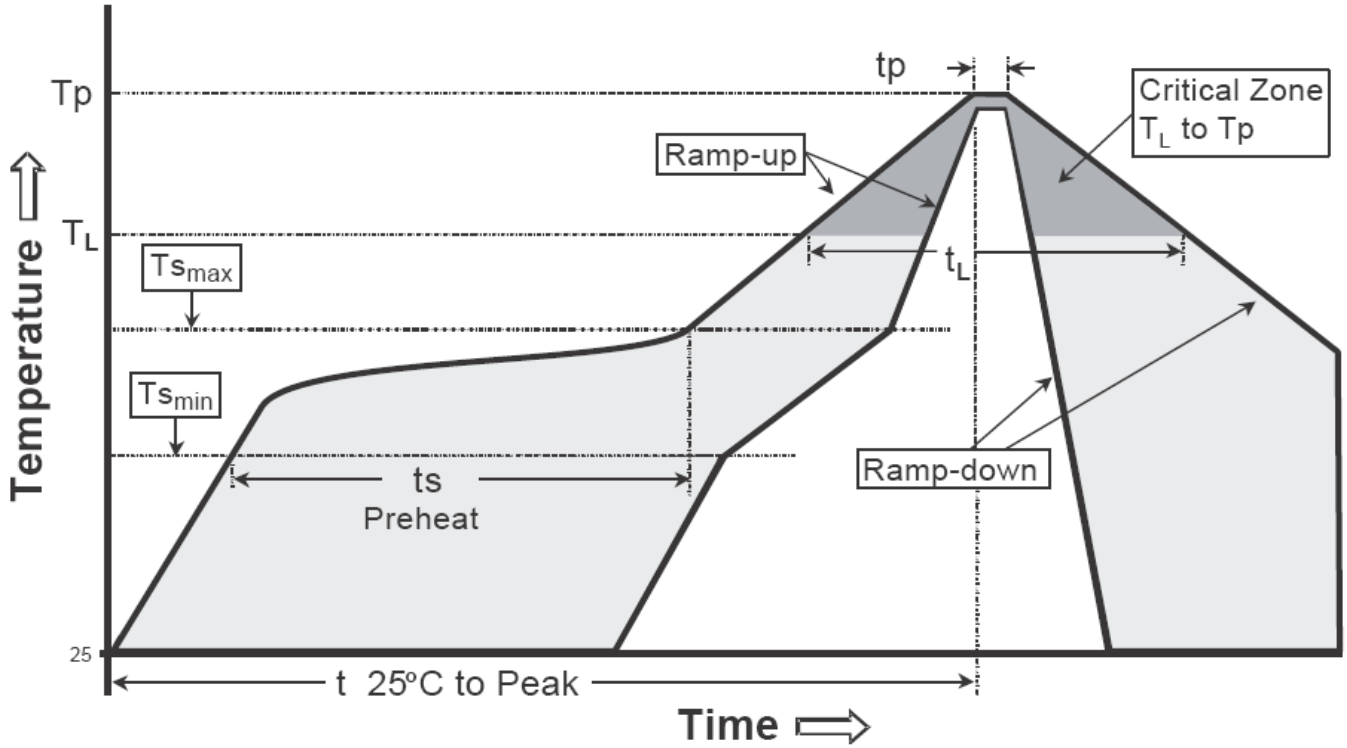
Carrier Tape Dimension



Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T_S max to T_P)	3°C/second max.	3°C/second max.
Preheat −Temperature Min (T_S min) −Temperature Max (T_S max) −Time (t_S min to t_S max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: −Temperature (T_L) −Time (t_L)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature (T_P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature (t_P)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note:
- All temperatures refer to topside of the package, measured on the package body surface.