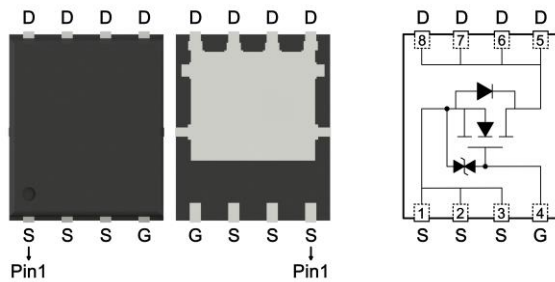


Product Summary

BV_{DSS}	100	V
$R_{DS(ON)}$ typ. @ $V_{GS}=10V, I_D=2A$	35	mΩ
$R_{DS(ON)}$ typ. @ $V_{GS}=4.5V, I_D=2A$	42	
I_D @ $V_{GS}=10V, T_C=25^\circ C$	20	A
I_D @ $V_{GS}=10V, T_A=25^\circ C$	5.2	

DFN5×6



Features

- Low Gate Charge
- Fast Switching Characteristic
- Pb-free lead plating and halogen-free
- ESD protected gate

Marking



← Device Code

← Date Code

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
MTB035N10KRH8-0-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 ($T_A=25^\circ C$)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current @ $V_{GS}=10V, T_C=25^\circ C$	I_D	20	A
Continuous Drain Current @ $V_{GS}=10V, T_C=100^\circ C$		13	
Continuous Drain Current @ $V_{GS}=10V, T_A=25^\circ C$		5.2	
Continuous Drain Current @ $V_{GS}=10V, T_A=70^\circ C$		4.2	
Pulsed Drain Current	I_{DM}	50	
Continuous Body Diode Forward Current @ $T_C=25^\circ C$	I_S	20	
Pulsed Body Diode Forward Current @ $T_C=25^\circ C$	I_{SM}	50	
Avalanche Current @ $L=0.1mH$	I_{AS}	6	mJ
Avalanche Energy @ $L=0.5mH$	E_{AS}	6	
Total Power Dissipation	P_D	$T_C=25^\circ C$	W
		$T_C=100^\circ C$	
		$T_A=25^\circ C$	
		$T_A=70^\circ C$	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	°C
Steady State Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.4	°C/W
Steady State Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	50	



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

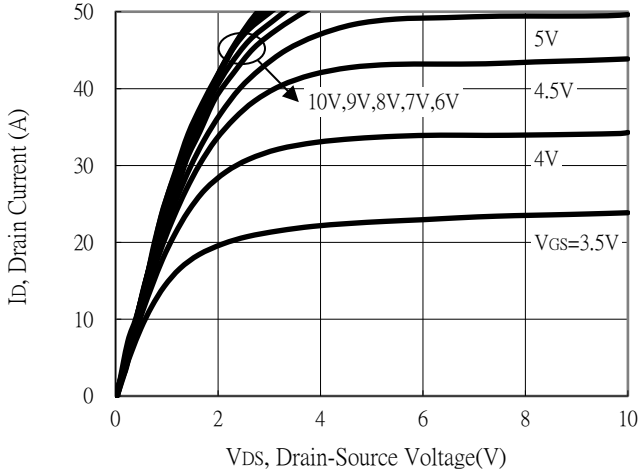
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV _{DSS}	100	-	-	V	V _{GS} =0V, I _D =250μA
V _{GS(th)}	1	-	2.5		V _{DS} =V _{GS} , I _D =250μA
G _{FS}	-	6.8	-	S	V _{DS} =5V, I _D =2A
I _{GSS}	-	-	±10	μA	V _{GS} =±16V, V _{DS} =0V
I _{DSS}	-	-	1		V _{DS} =80V, V _{GS} =0V
R _{DS(ON)}	-	35	45	mΩ	V _{GS} =10V, I _D =2A
	-	42	60		V _{GS} =4.5V, I _D =2A
Dynamic					
C _{iSS}	-	570	-	pF	V _{DS} =50V, V _{GS} =0V, f=1MHz
C _{oss}	-	135	-		
C _{rSS}	-	25	-		
R _g	-	6.5	-	Ω	f=1MHz
Q _g *d,e	-	5.2	-	nC	V _{DS} =50V, I _D =2A, V _{GS} =4.5V
Q _g *d,e	-	10	-		
Q _{gs} *d,e	-	1.7	-		
Q _{gd} *d,e	-	1.9	-		
t _{d(ON)} *d,e	-	6.7	-	ns	V _{DS} =50V, I _D =2A, V _{GS} =10V, R _{GS} =1Ω
t _r *d,e	-	17	-		
t _{d(OFF)} *d,e	-	27	-		
t _f *d,e	-	8.5	-		
Source-Drain Diode					
V _{SD} *d	-	0.8	1.2	V	I _S =2A, V _{GS} =0V
t _{rr}	-	21	-	ns	I _F =2A, di/dt=100A/μs
Q _{rr}	-	15	-	nC	

Note:

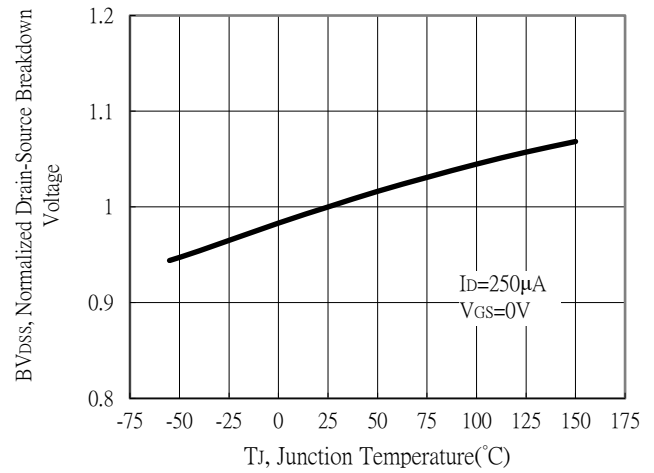
- *a. The power dissipation P_D is based on T_{J(MAX)}=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper Dissipation.
- *b. The value of R_{θJA} is measured with the device mounted on 1in² FR-4 board with 2oz copper, in a still air environment with T_A=25°C. The power dissipation P_D is based on R_{θJA} 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

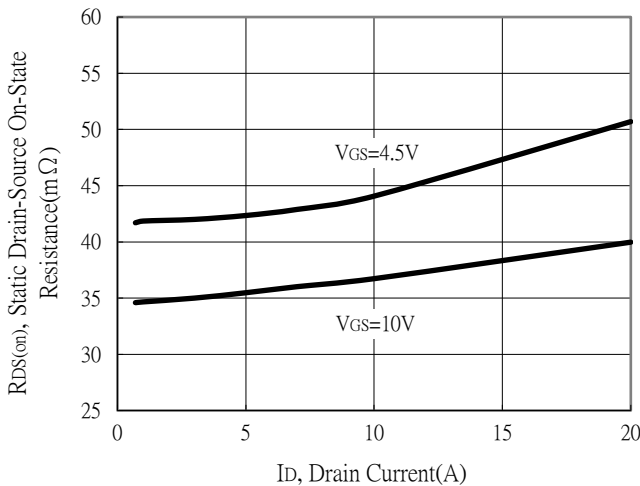
Typical Output Characteristics



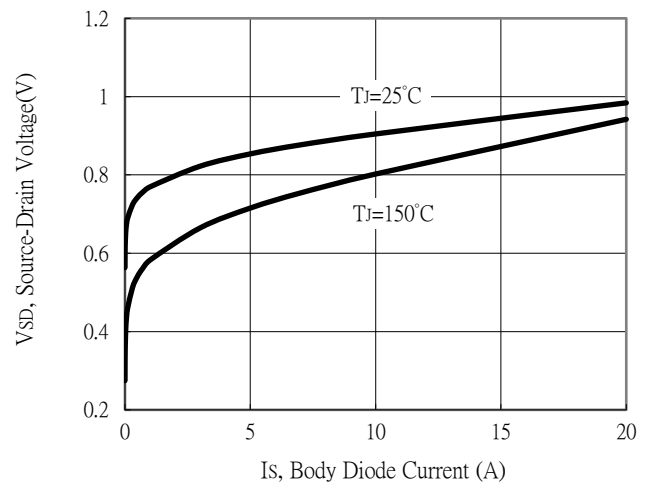
Breakdown Voltage vs Ambient Temperature



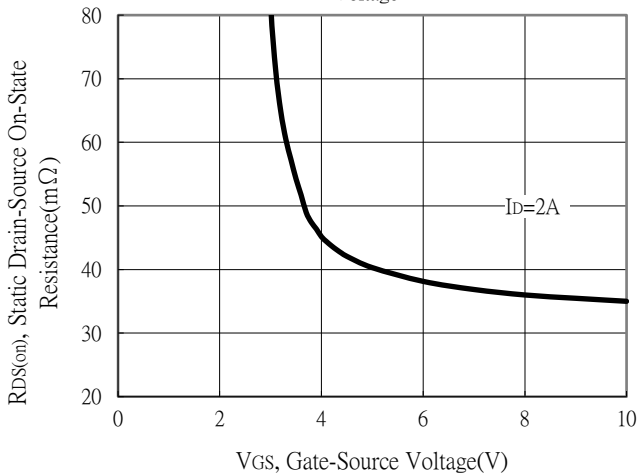
Static Drain-Source On-State resistance vs Drain Current



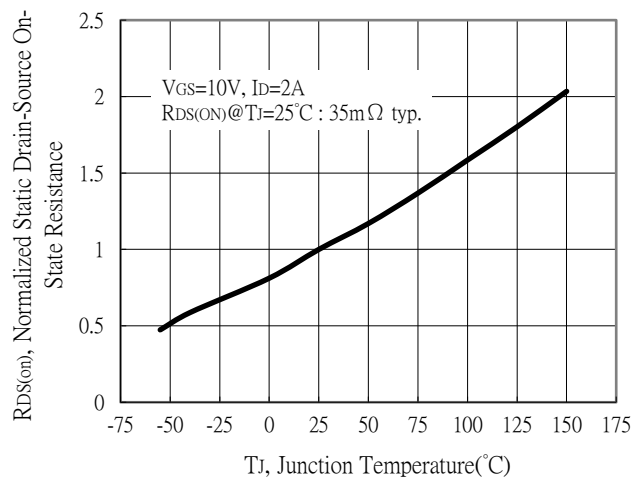
Body Diode Current vs Source-Drain Voltage



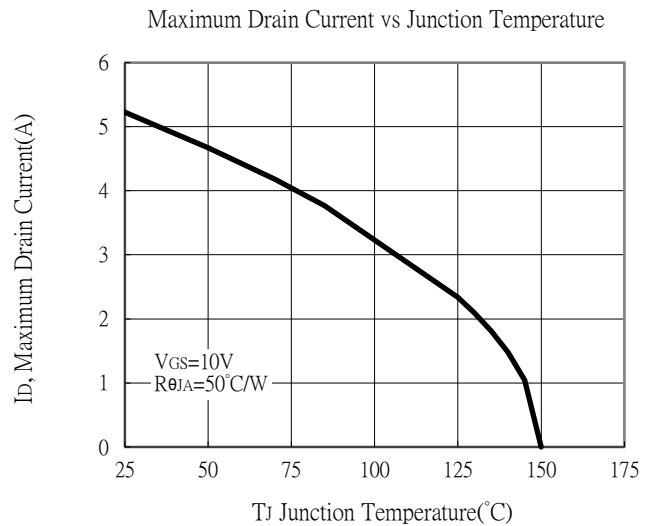
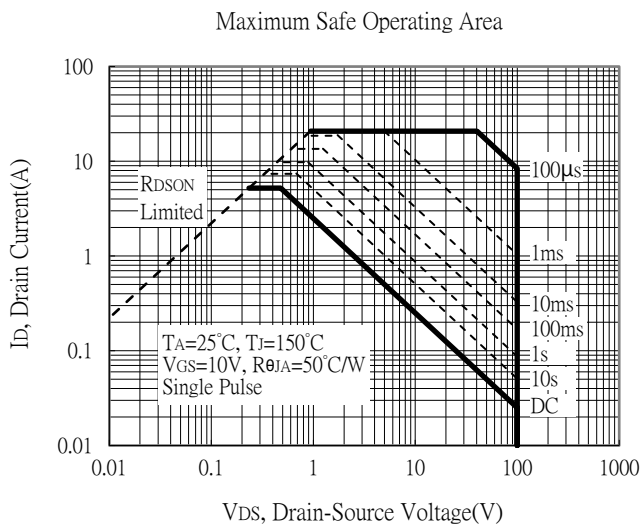
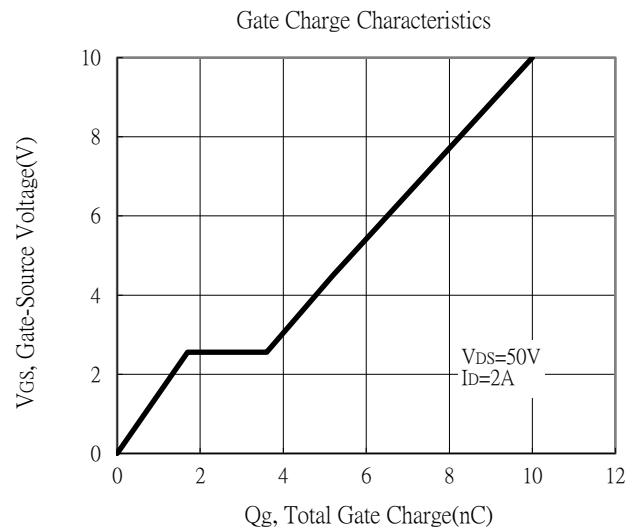
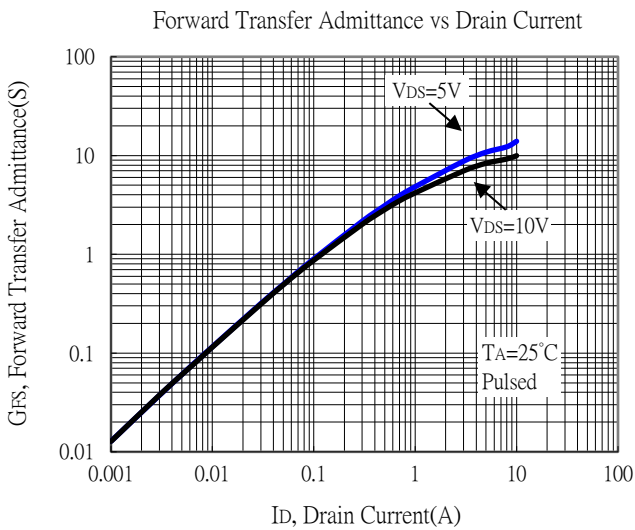
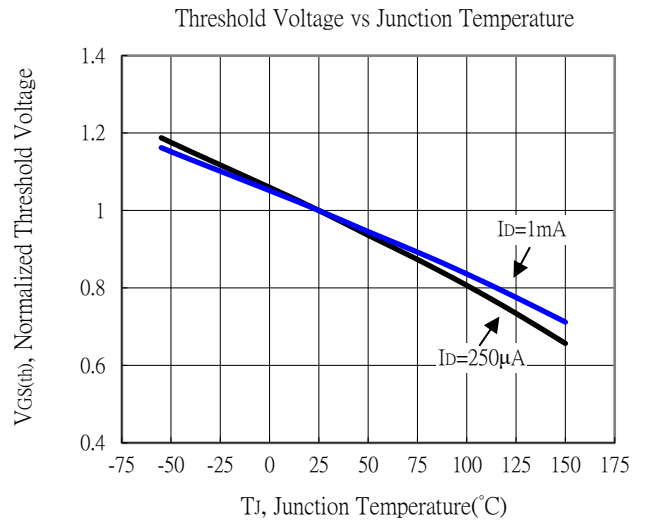
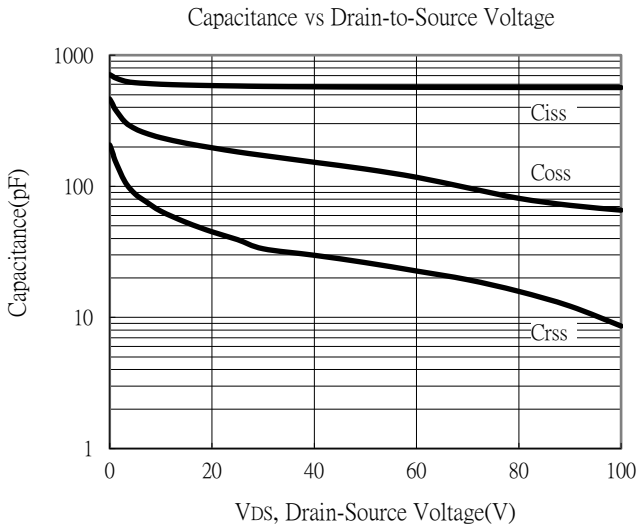
Static Drain-Source On-State Resistance vs Gate-Source Voltage



Drain-Source On-State Resistance vs Junction Temperature



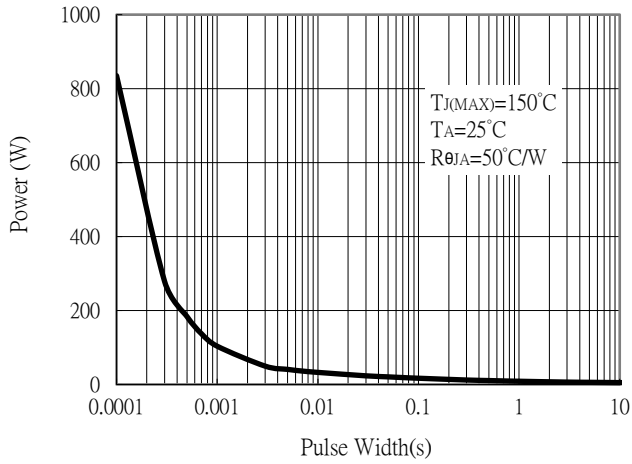
Typical Characteristics



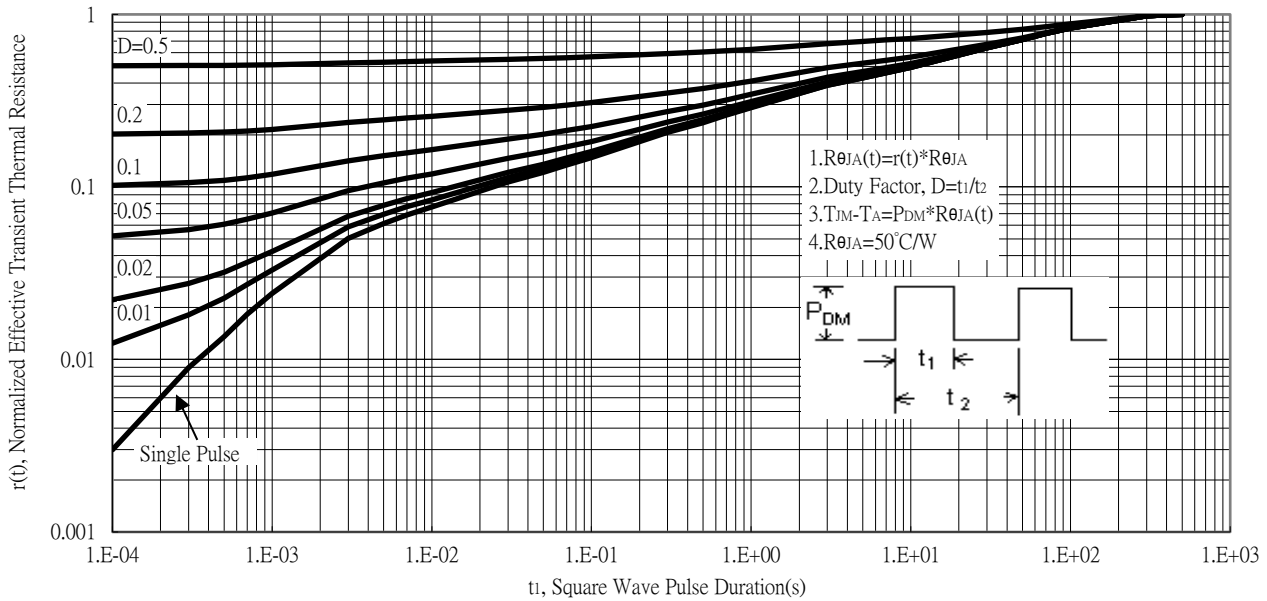


Typical Characteristics

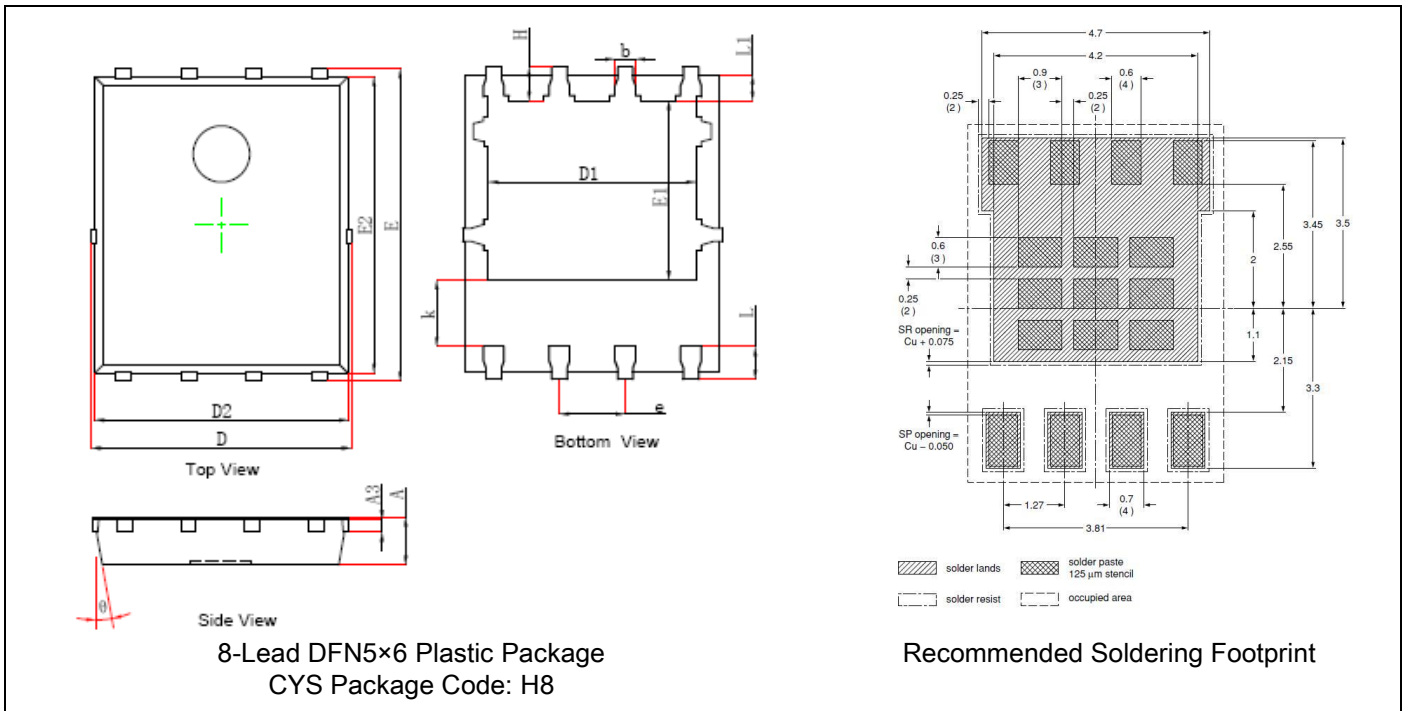
Single Pulse Power Rating, Junction to Ambient



Transient Thermal Response Curves



DFN5×6 Dimension



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.

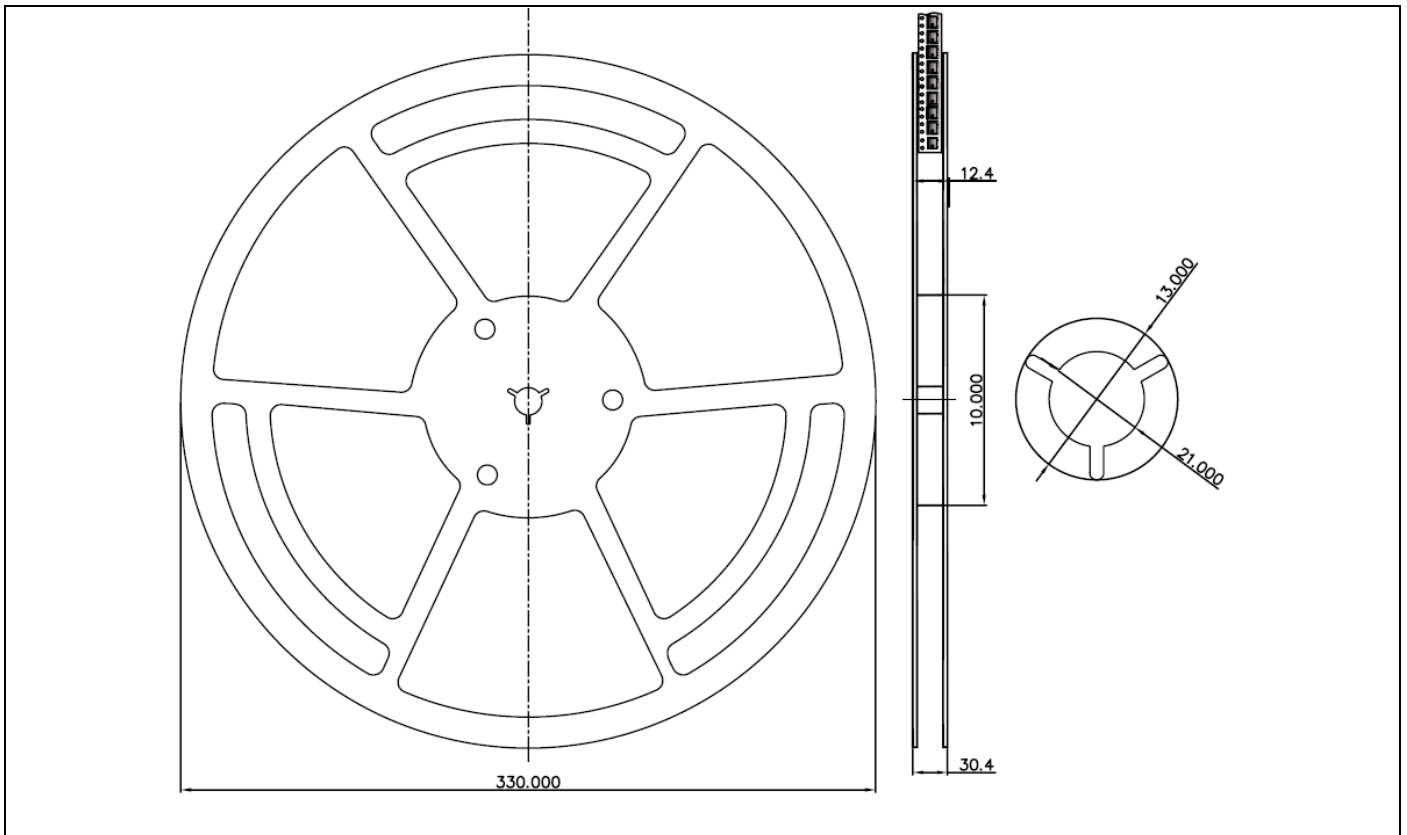
Material:

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

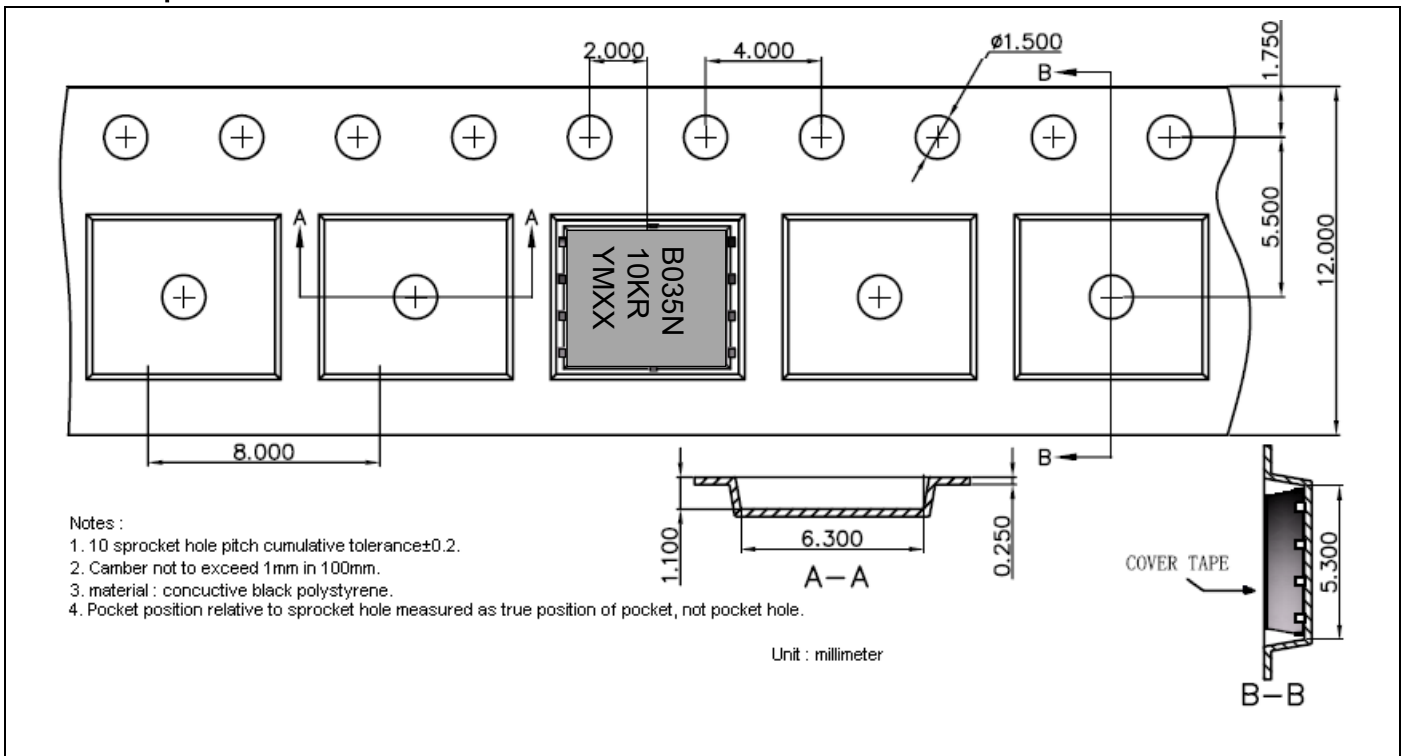
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Reel Dimension



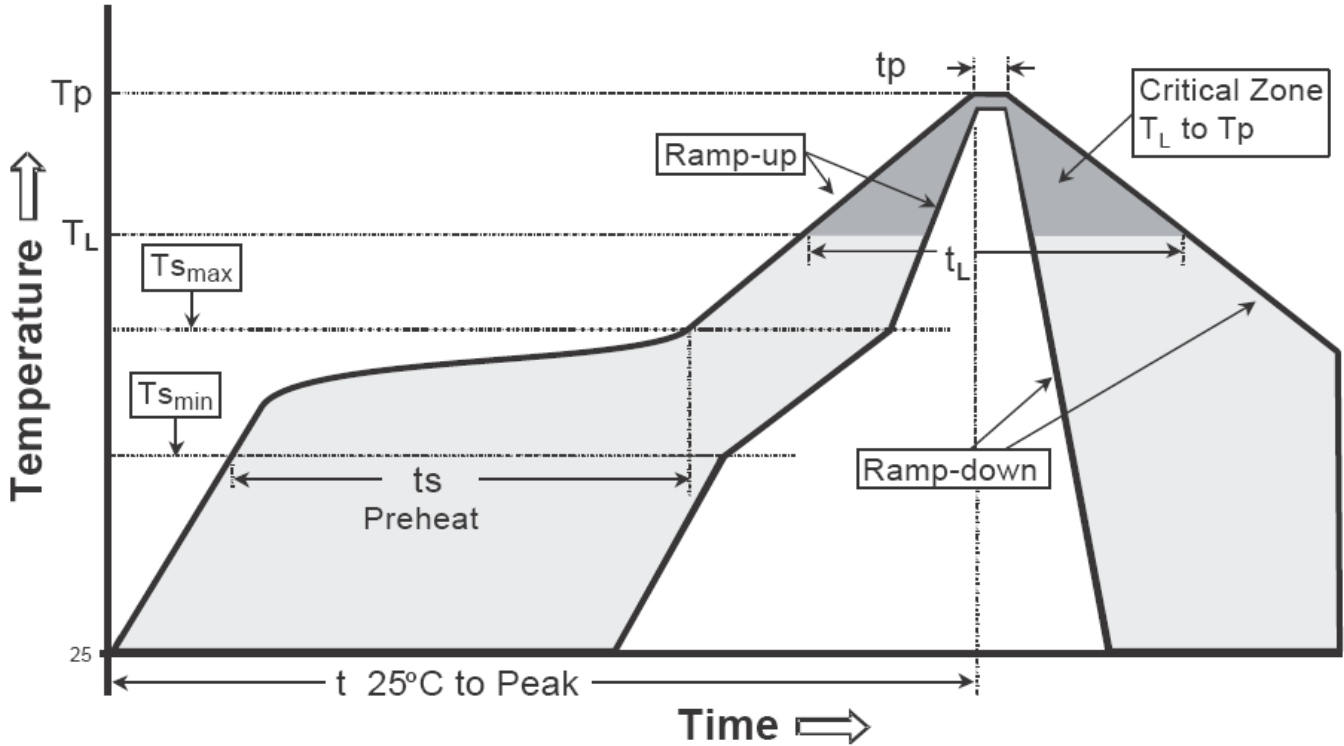
Carrier Tape Dimension



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.