

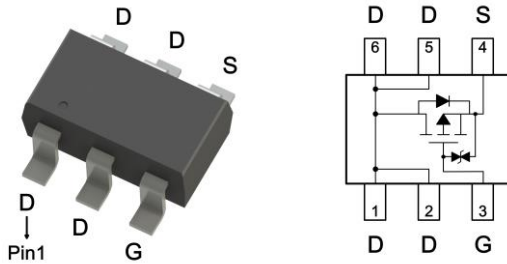
## Product Summary

$BV_{DSS}$	-100	V
$R_{DS(ON)}$ typ. @ $V_{GS}=-10V, I_D=-2A$	155	mΩ
$R_{DS(ON)}$ typ. @ $V_{GS}=-4.5V, I_D=-1A$	185	
$I_D$ @ $V_{GS}=-10V, T_A=25^{\circ}C$	-2.1	A

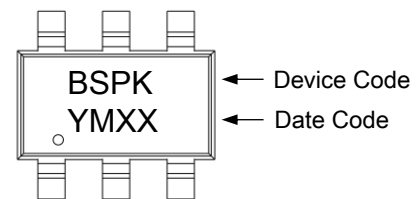
## Features

- Low Gate Charge
- Fast Switching Characteristic
- Pb-free lead plating and halogen-free
- ESD protected gate, typical 3kV (HBM)

## SOT-26



## Marking



YM: 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
MTB160P10KN6-0-T1-G	SOT-26	3000pcs / Tape & Reel

0: Product rank, zero for no rank products.

T1: Packing spec, T1 : 3000pcs / tape & reel, 7" 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	$V_{GS}$	$\pm 20$	
Continuous Drain Current @ $V_{GS}=-10V, T_A=25^{\circ}C$	$I_D$	-2.1	A
Continuous Drain Current @ $V_{GS}=-10V, T_A=70^{\circ}C$		-1.7	
Pulsed Drain Current	$I_{DM}$	-8	
Continuous Body Diode Forward Current @ $T_A=25^{\circ}C$	$I_S$	-1.4	
Pulsed Body Diode Forward Current @ $T_A=25^{\circ}C$	$I_{SM}$	-5.6	
Total Power Dissipation	$P_D$	$T_A=25^{\circ}C$	
		$T_A=70^{\circ}C$	1.1
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55~+150	$^{\circ}C$
Steady State Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	75	$^{\circ}C/W$



Electrical Characteristics (T<sub>A</sub>=25°C, unless otherwise specified)

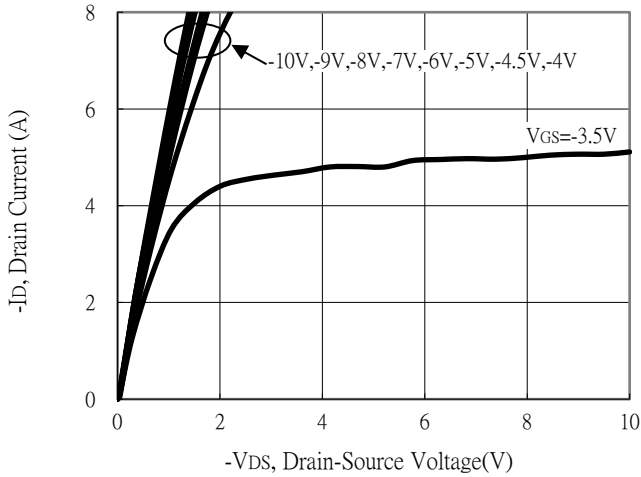
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
<b>Static</b>					
BV <sub>DSS</sub>	-100	-	-	V	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA
V <sub>GS(th)</sub>	-1	-	-2.5		V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA
G <sub>FS</sub>	-	5.1	-	S	V <sub>DS</sub> =-10V, I <sub>D</sub> =-2A
I <sub>GSS</sub>	-	-	±10	μA	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V
I <sub>DSS</sub>	-	-	-1		V <sub>DS</sub> =-80V, V <sub>GS</sub> =0V
R <sub>DS(ON)</sub>	-	155	200	mΩ	V <sub>GS</sub> =-10V, I <sub>D</sub> =-2A
	-	185	260		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1A
<b>Dynamic</b>					
C <sub>iSS</sub>	-	772	-	pF	V <sub>DS</sub> =-50V, V <sub>GS</sub> =0V, f=1MHz
C <sub>oss</sub>	-	41	-		
C <sub>rSS</sub>	-	32	-		
R <sub>g</sub>	-	5	-	Ω	f=1MHz
Q <sub>g</sub> *c,d	-	8	-	nC	V <sub>DS</sub> =-50V, I <sub>D</sub> =-2A, V <sub>GS</sub> =-4.5V
Q <sub>g</sub> *c,d	-	16	-		
Q <sub>gs</sub> *c,d	-	3	-		
Q <sub>gd</sub> *c,d	-	3	-		
t <sub>d(ON)</sub> *c,d	-	9	-	ns	V <sub>DS</sub> =-50V, I <sub>D</sub> =-2A, V <sub>GS</sub> =-10V, R <sub>GS</sub> =1Ω
t <sub>r</sub> *c,d	-	18	-		
t <sub>d(OFF)</sub> *c,d	-	36	-		
t <sub>f</sub> *c,d	-	12	-		
<b>Source-Drain Diode</b>					
V <sub>SD</sub> *c	-	-0.8	-1.2	V	I <sub>S</sub> =-2A, V <sub>GS</sub> =0V
t <sub>rr</sub>	-	21	-	ns	I <sub>F</sub> =-2A, di/dt=100A/μs
Q <sub>rr</sub>	-	21	-	nC	

Note:

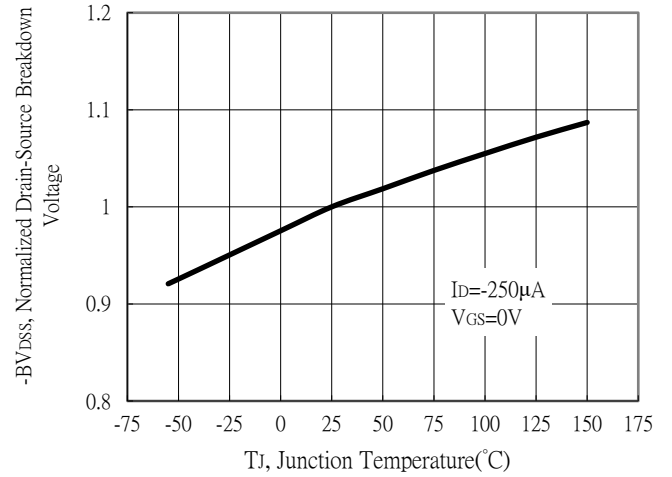
- \*a. The value of R<sub>θJA</sub> is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz copper, in a still air environment with T<sub>A</sub>=25°C. The power dissipation P<sub>D</sub> is based on R<sub>θJA</sub> and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.
- \*b. Repetitive rating, pulse width limited by junction temperature T<sub>J(MAX)</sub>=150°C. Ratings are based on low frequency and low duty cycles to keep initial T<sub>J</sub>=25°C.
- \*c. Pulse Test : Pulse Width≤300μs, Duty Cycle≤2%.
- \*d. Independent of operating temperature.

## Typical Characteristics

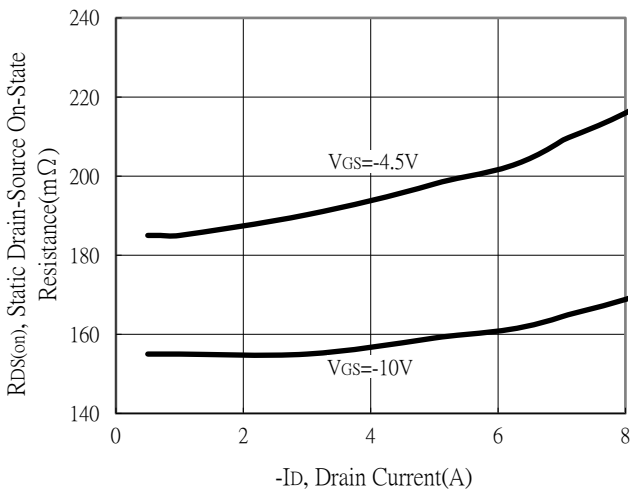
Typical Output Characteristics



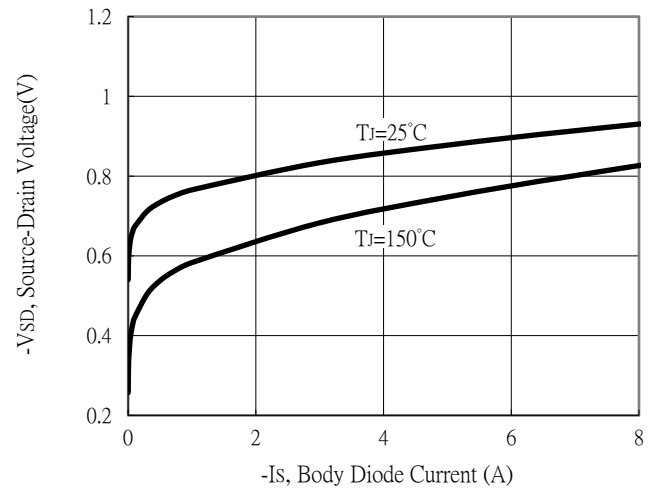
Breakdown Voltage vs Ambient Temperature



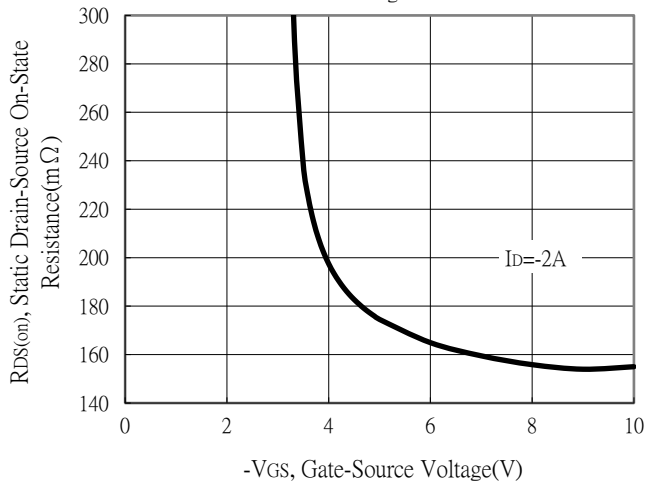
Static Drain-Source On-State resistance vs Drain Current



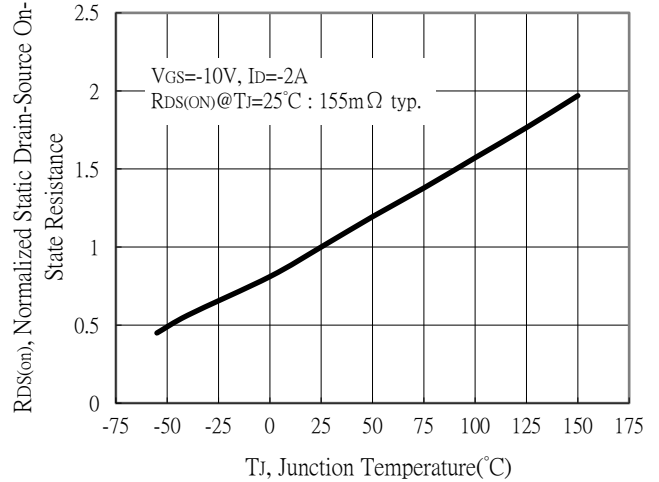
Body Diode Current vs Source-Drain Voltage



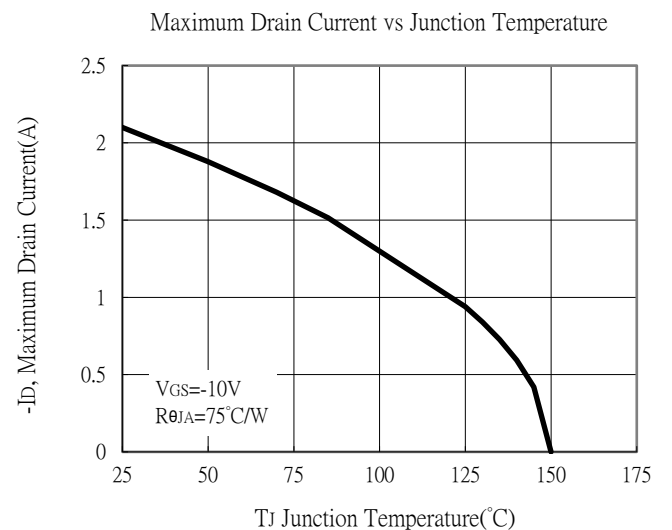
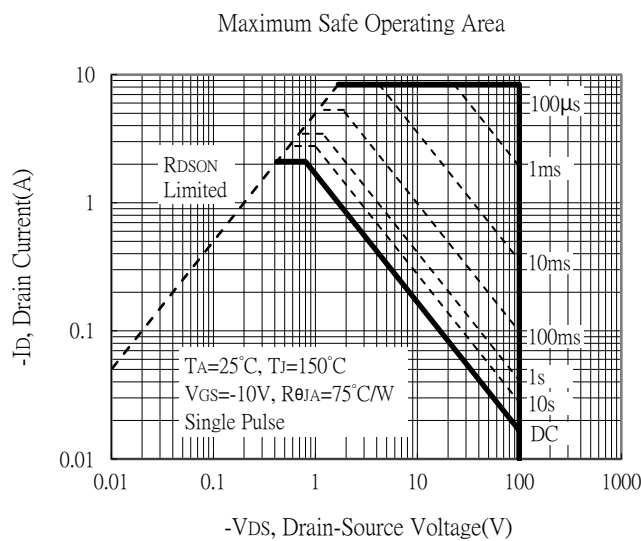
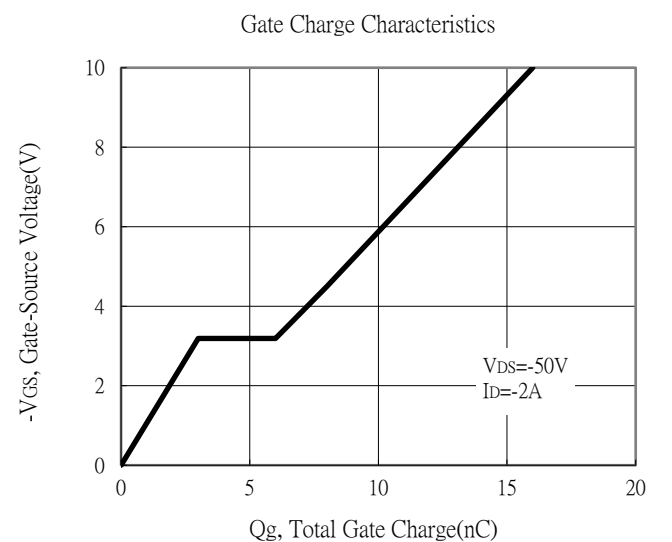
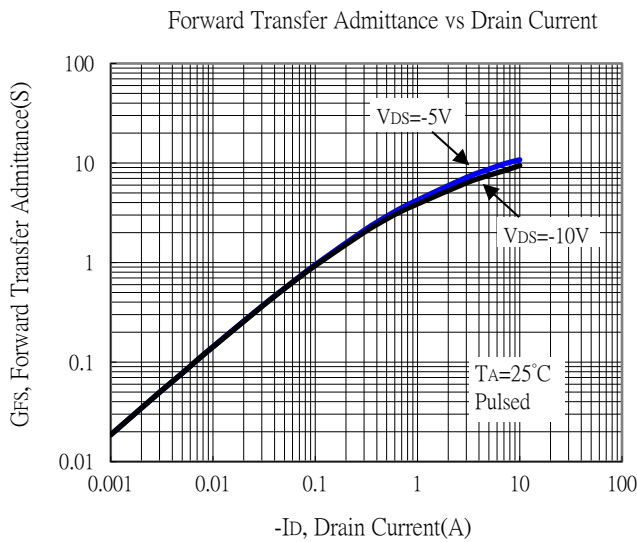
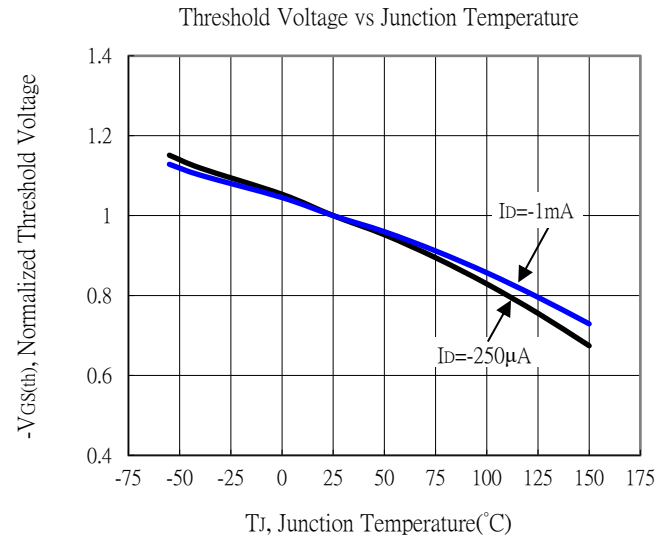
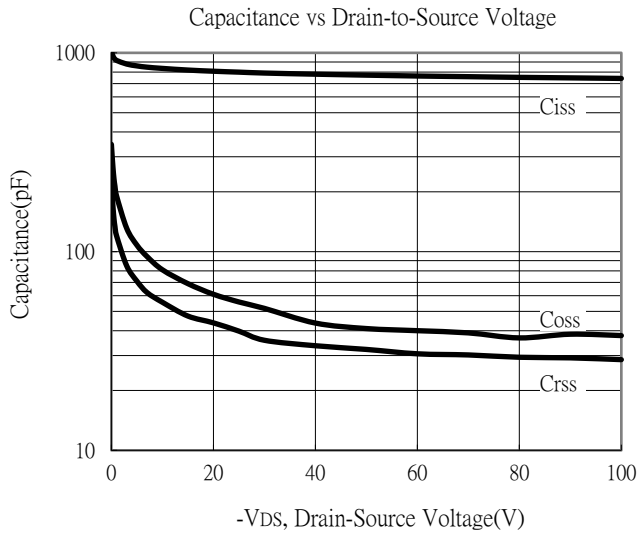
Static Drain-Source On-State Resistance vs Gate-Source Voltage



Drain-Source On-State Resistance vs Junction Temperature



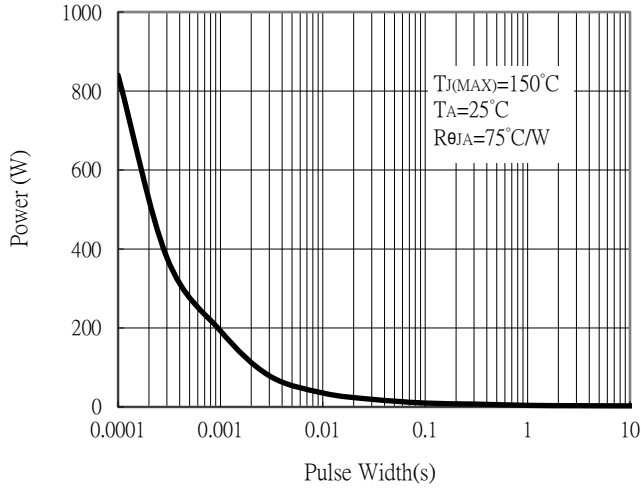
## Typical Characteristics



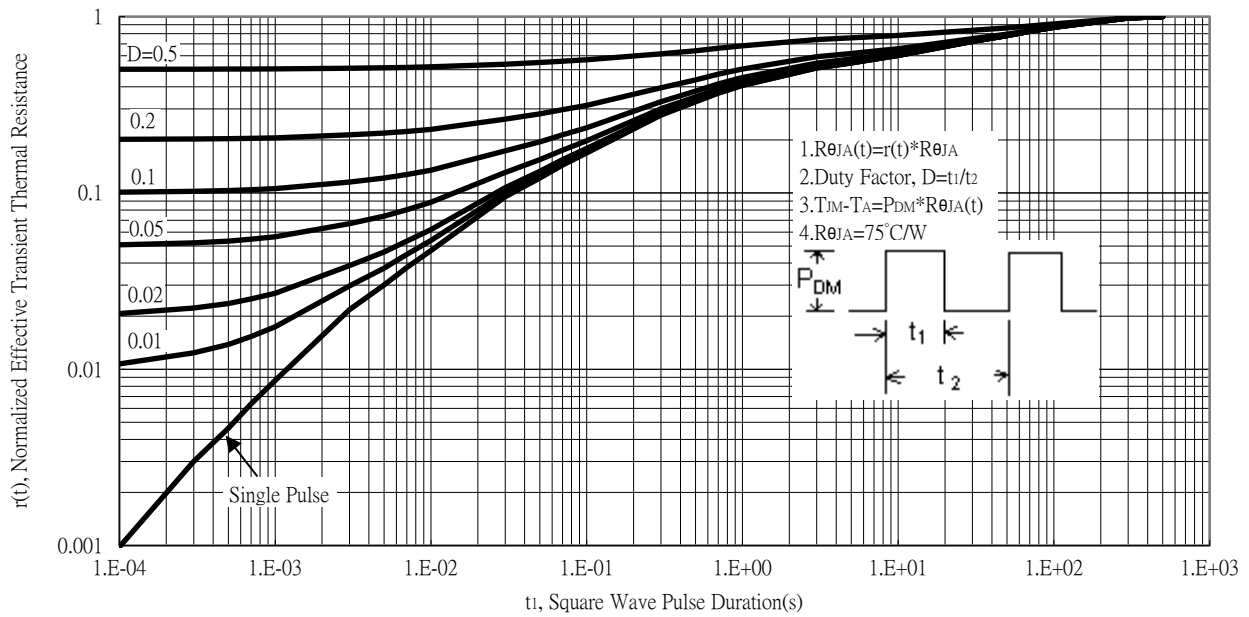


## Typical Characteristics

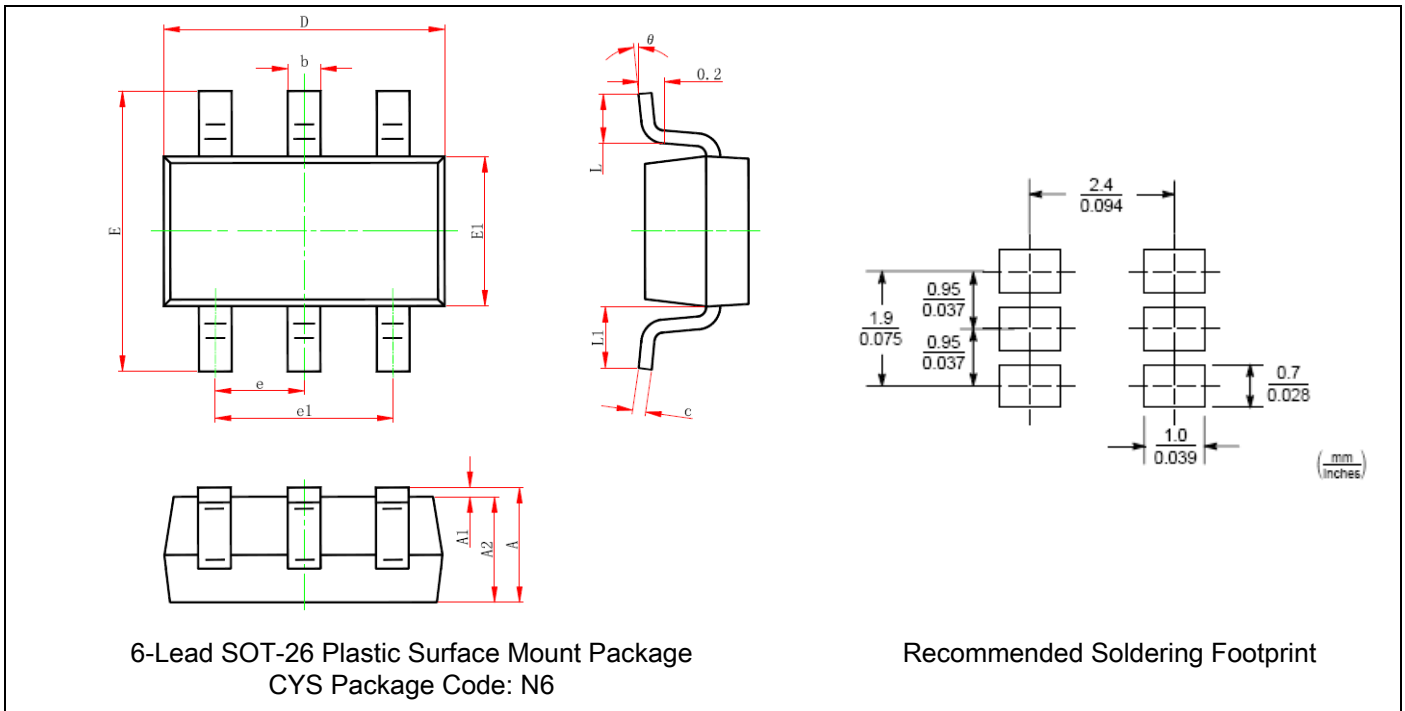
Single Pulse Power Rating, Junction to Ambient



Transient Thermal Response Curves



## SOT-26 Dimension



DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.041	0.049	1.050	1.250	E	0.104	0.116	2.650	2.950
A1	0.000	0.004	0.000	0.100	e	0.037	(BSC)	0.950	(BSC)
A2	0.041	0.045	1.050	1.150	e1	0.071	0.079	1.800	2.000
b	0.012	0.020	0.300	0.500	L	0.012	0.024	0.300	0.600
c	0.004	0.008	0.100	0.200	L1	0.024	REF.	0.600	REF.
D	0.111	0.119	2.820	3.020	θ	0°	8°	0°	8°
E1	0.059	0.067	1.500	1.700					

**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.

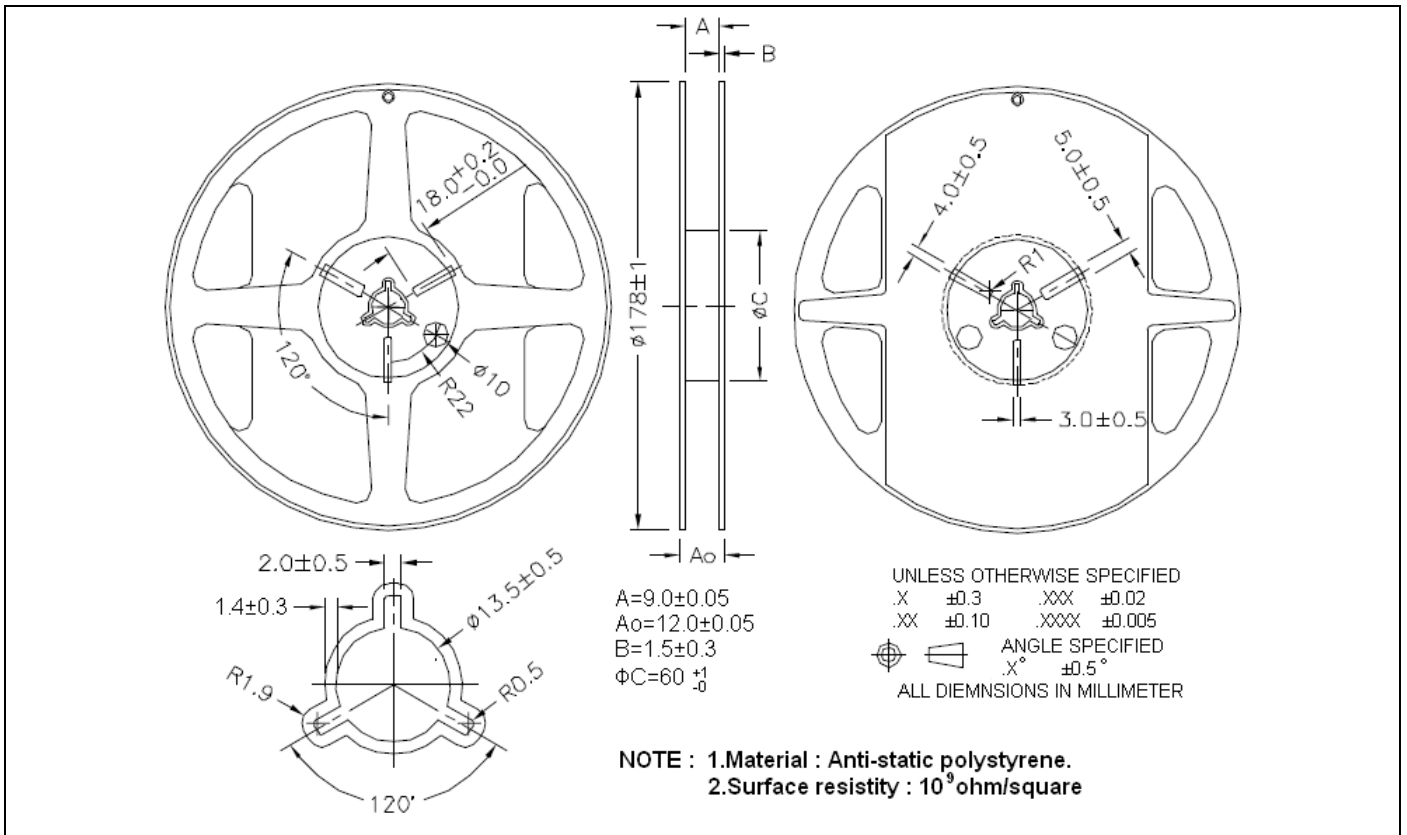
**Material:**

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

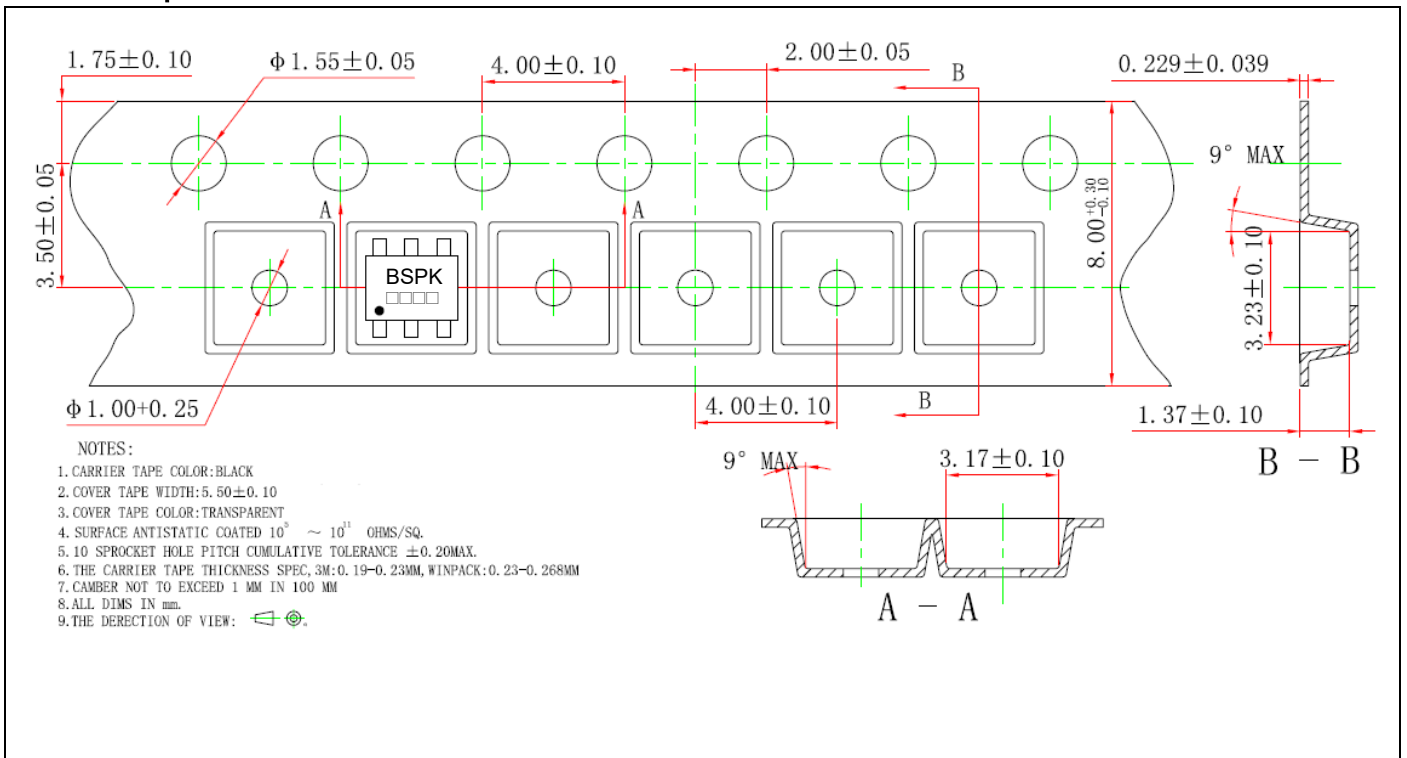
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## Reel Dimension



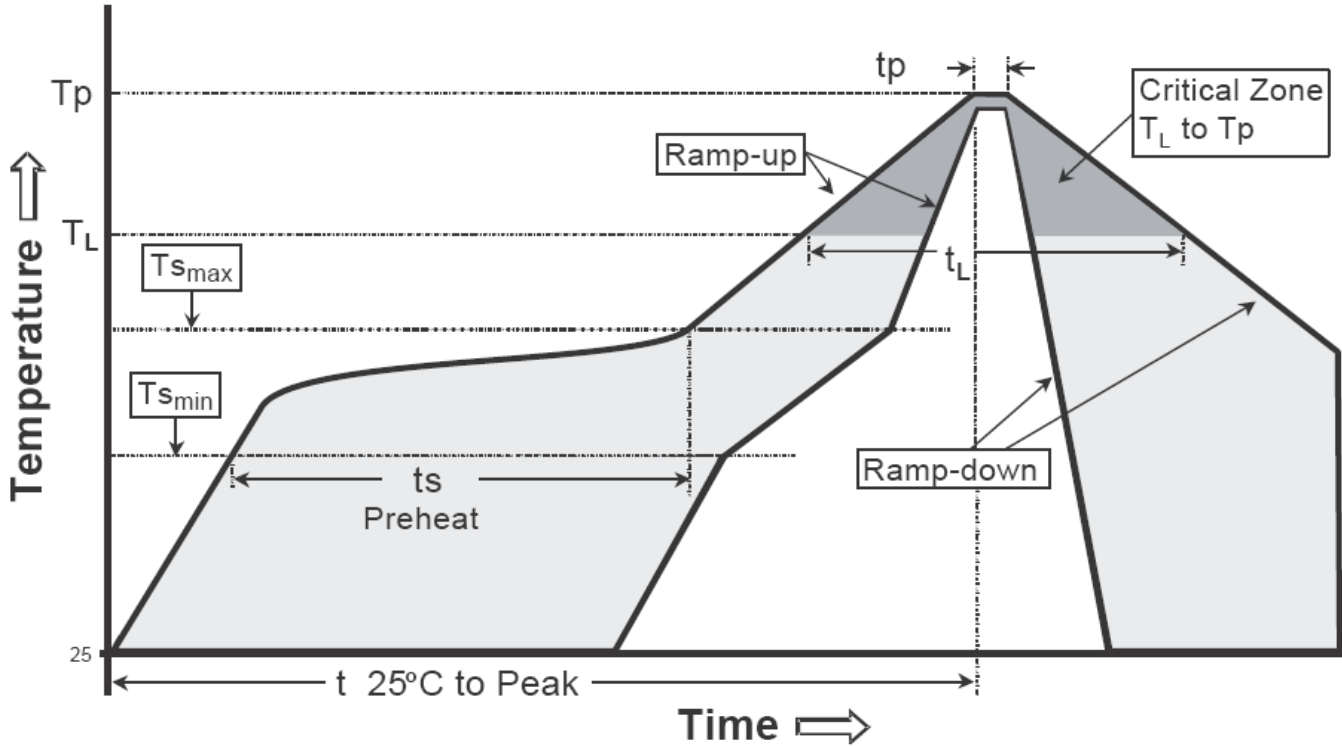
## Carrier Tape Dimension



### 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 <sub>S</sub> max to T <sub>P</sub> )	3°C/second max.	3°C/second max.
Preheat -Temperature Min (T <sub>S</sub> min) -Temperature Max (T <sub>S</sub> max) -Time (t <sub>S</sub> min to t <sub>S</sub> max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (T <sub>L</sub> ) -Time (t <sub>L</sub> )	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature (T <sub>P</sub> )	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature (t <sub>p</sub> )	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.