

# N-CHANNEL MOSFET

# MTN3418S3

$BV_{DSS}$	30V
$I_D$	1.9A
$R_{DS(on)(max)}$	110m $\Omega$

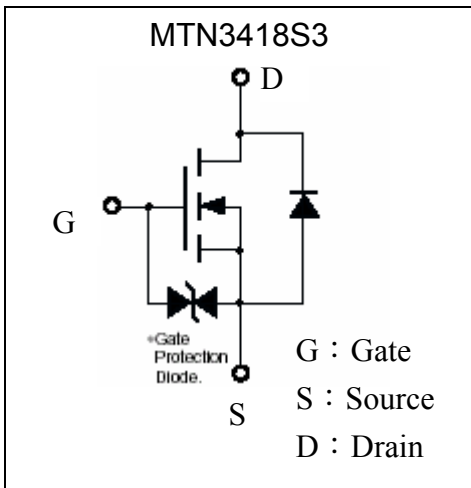
## Description

The MTN3418S3 is a N-channel enhancement-mode MOSFET.

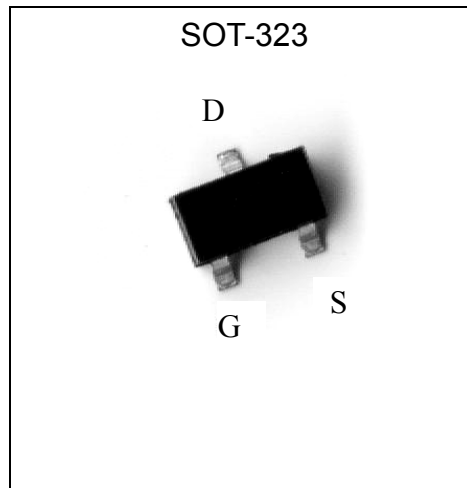
## Features

- Low on-resistance
- High ESD
- High speed switching
- Low-voltage drive(4V)
- Easily designed drive circuits
- Easy to use in parallel
- Pb-free package

## Symbol



## Outline



## Ordering Information

Device	Package	Shipping
MTN3418S3-0-T1-G	SOT-23 (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 <sub>DSS</sub>	30	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Drain Current	Continuous	I <sub>D</sub>	1.9
	Pulsed	I <sub>DP</sub>	7.6 *1
Total Power Dissipation (Ta=25°C)	P <sub>D</sub>	200	mW
Total Power Dissipation (Tc=25°C)		400	
ESD susceptibility		750 *2	V
Channel Temperature	T <sub>CH</sub>	+150	°C
Storage Temperature	T <sub>stg</sub>	-55~+150	°C

Note : \*1. Pulse Width ≤ 300μs, Duty cycle ≤ 2%

\*2. Human body model, 1.5kΩ in series with 100pF

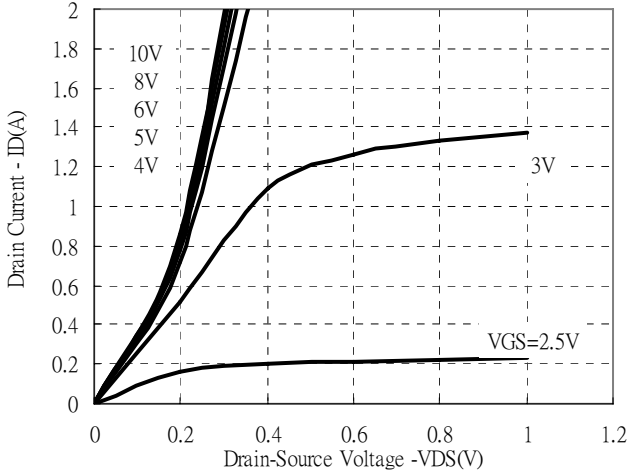
**Electrical Characteristics (Ta=25°C)**

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
<b>Static</b>					
BV <sub>DSS</sub> *	30	-	-	V	V <sub>GS</sub> =0, I <sub>D</sub> =10μA
V <sub>GS(th)</sub>	1	-	2.5	V	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA
I <sub>GSS</sub>	-	-	±5	μA	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0
I <sub>DSS</sub>	-	-	500	nA	V <sub>DS</sub> =30V, V <sub>GS</sub> =0
R <sub>DS(ON)</sub> *	-	133	150	mΩ	I <sub>D</sub> =950mA, V <sub>GS</sub> =4V
	-	90	110		I <sub>D</sub> =1.9A, V <sub>GS</sub> =10V
G <sub>FS</sub>	400	-	-	mS	V <sub>DS</sub> =10V, I <sub>D</sub> =500mA
<b>Dynamic</b>					
C <sub>iss</sub>	-	215	-	pF	V <sub>DS</sub> =10V, V <sub>GS</sub> =0, f=1MHz
C <sub>oss</sub>	-	54	-		
C <sub>rss</sub>	-	34	-		
<b>Source-Drain Diode</b>					
*V <sub>SD</sub>	-	-	1	V	V <sub>GS</sub> =0V, I <sub>SD</sub> =1A

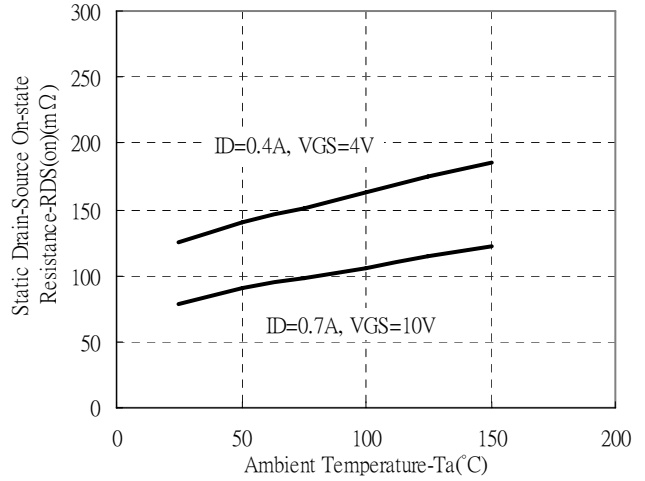
\*Pulse Test : Pulse Width ≤ 380μs, Duty Cycle ≤ 2%

## Typical Characteristics

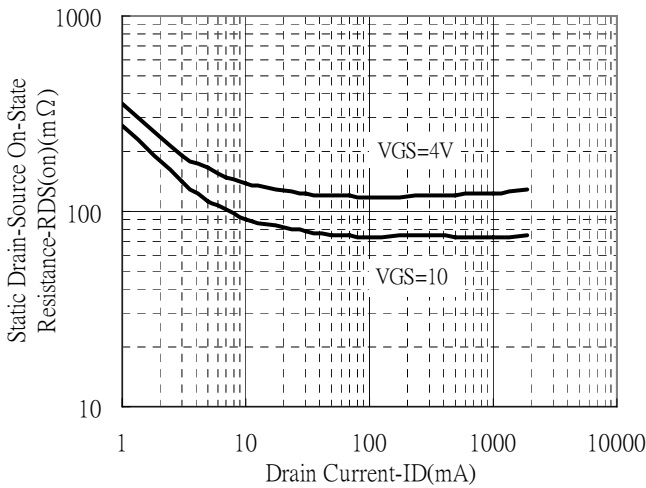
Typical Output Characteristics



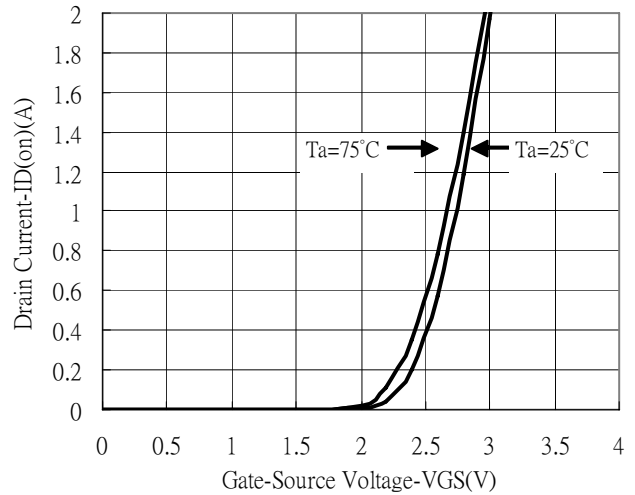
Static Drain-Source On-resistance vs Ambient Temperature



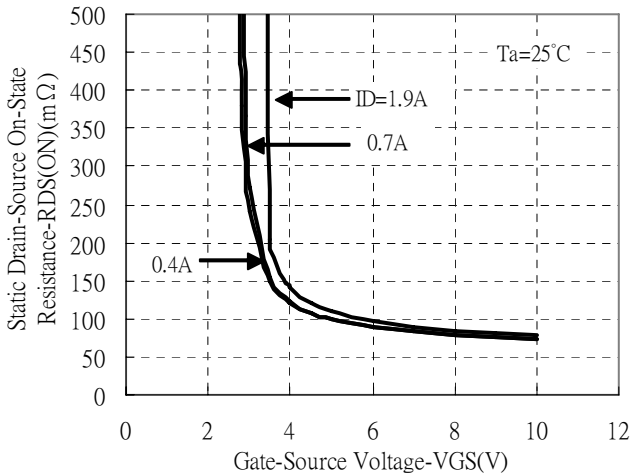
Static Drain-Source On-State resistance vs Drain Current



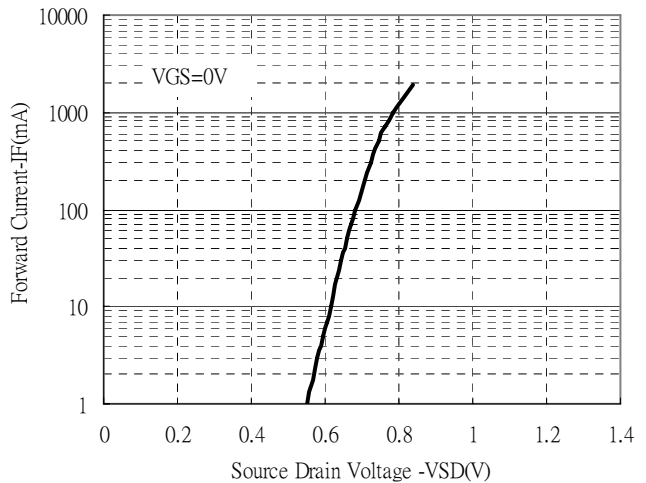
Drain Current vs Gate-Source Voltage



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

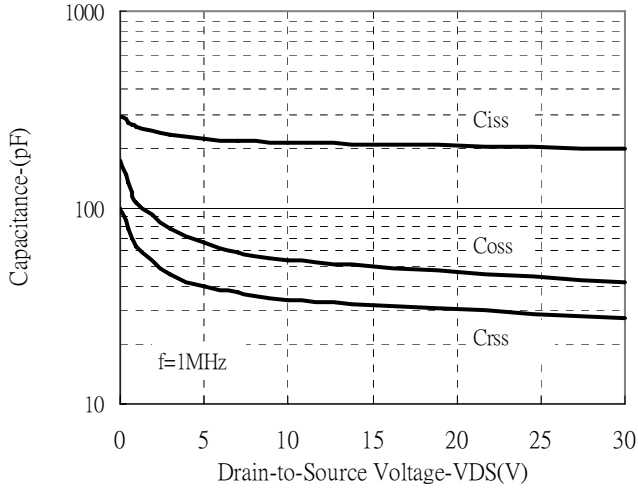


Forward Drain Current vs Source-Drain Voltage

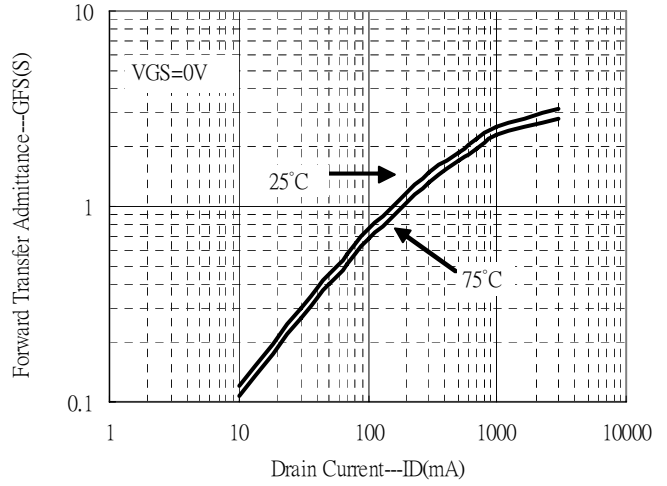


**Typical Characteristics(Cont.)**

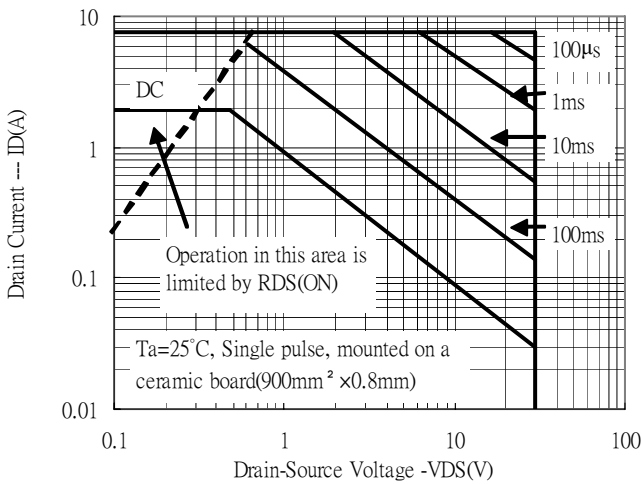
Capacitance vs Reverse Voltage



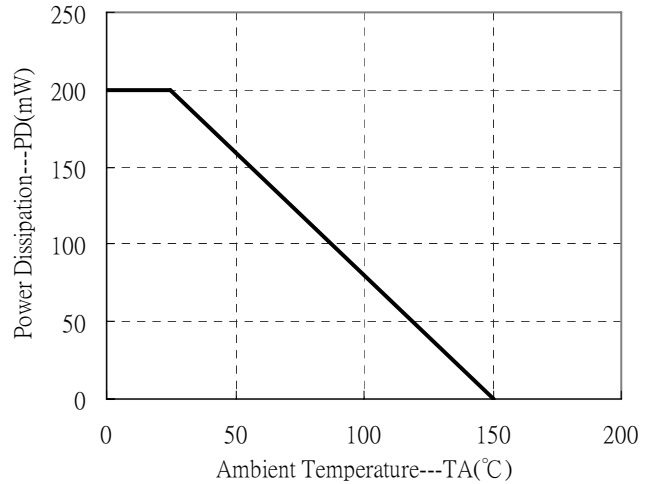
Forward Transfer Admittance vs Drain Current



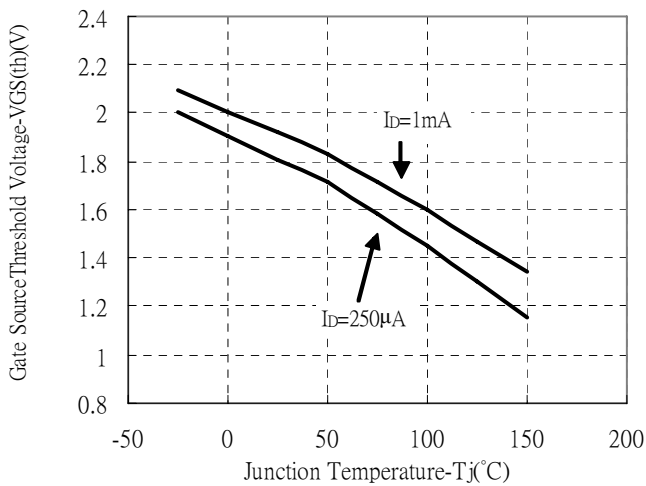
Maximum Safe Operating Area



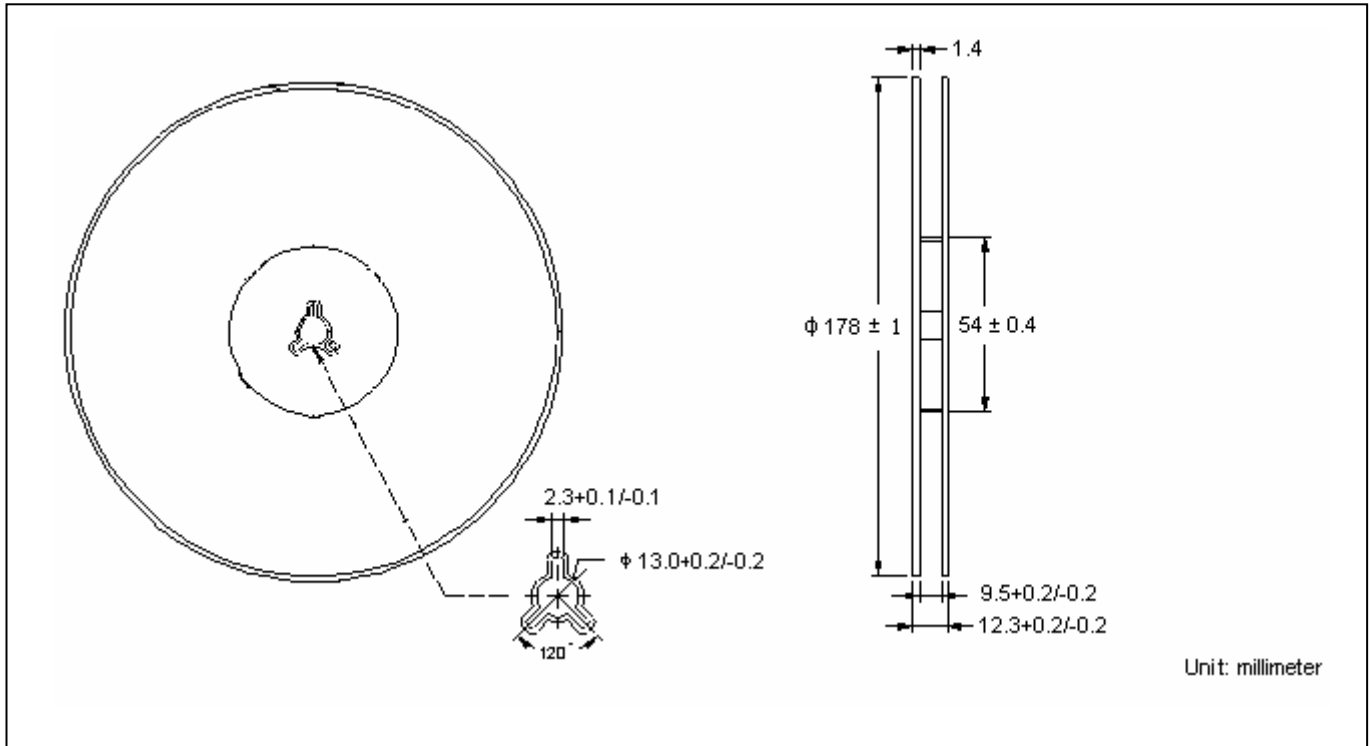
Power Derating Curve



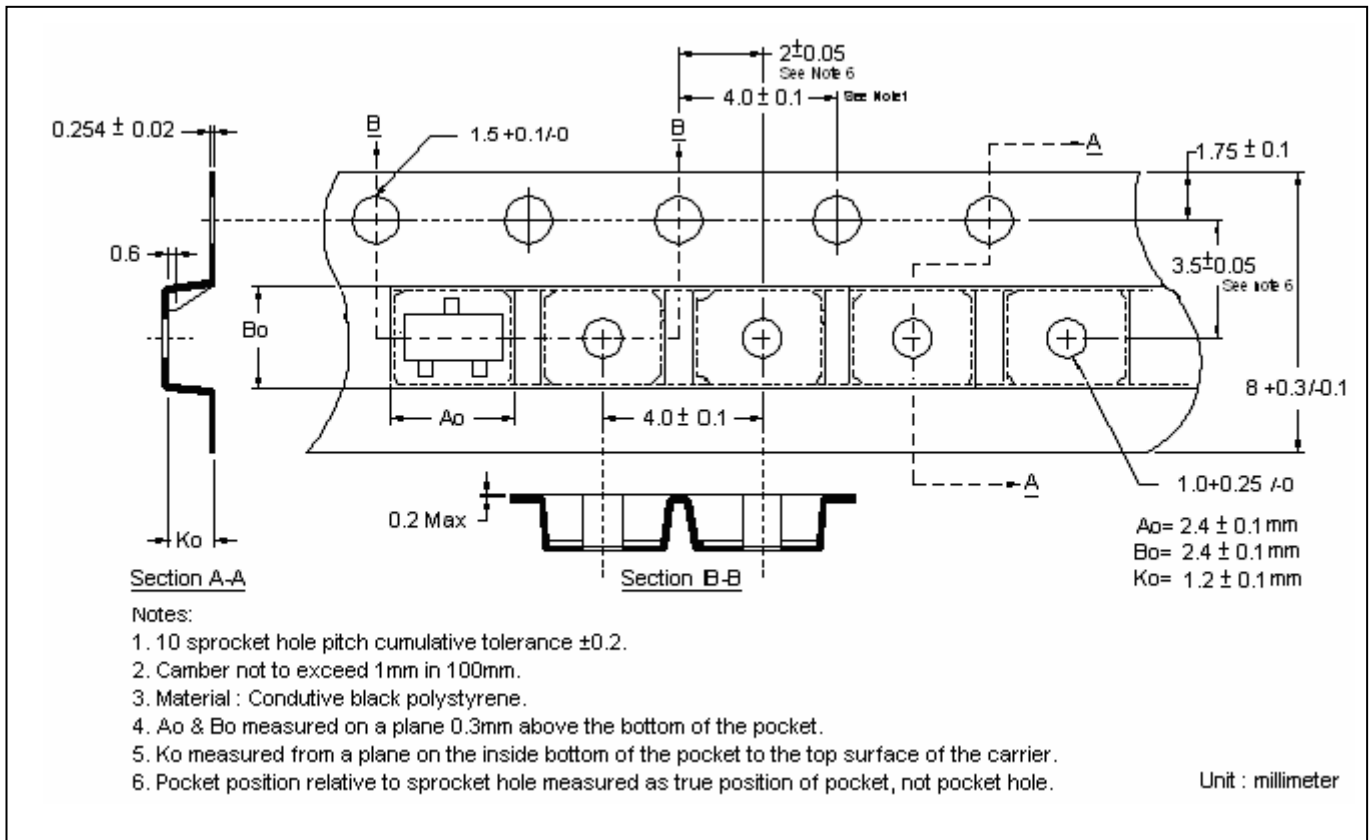
Gate Threshold Voltage vs Ambient Temperature



**Reel Dimension**



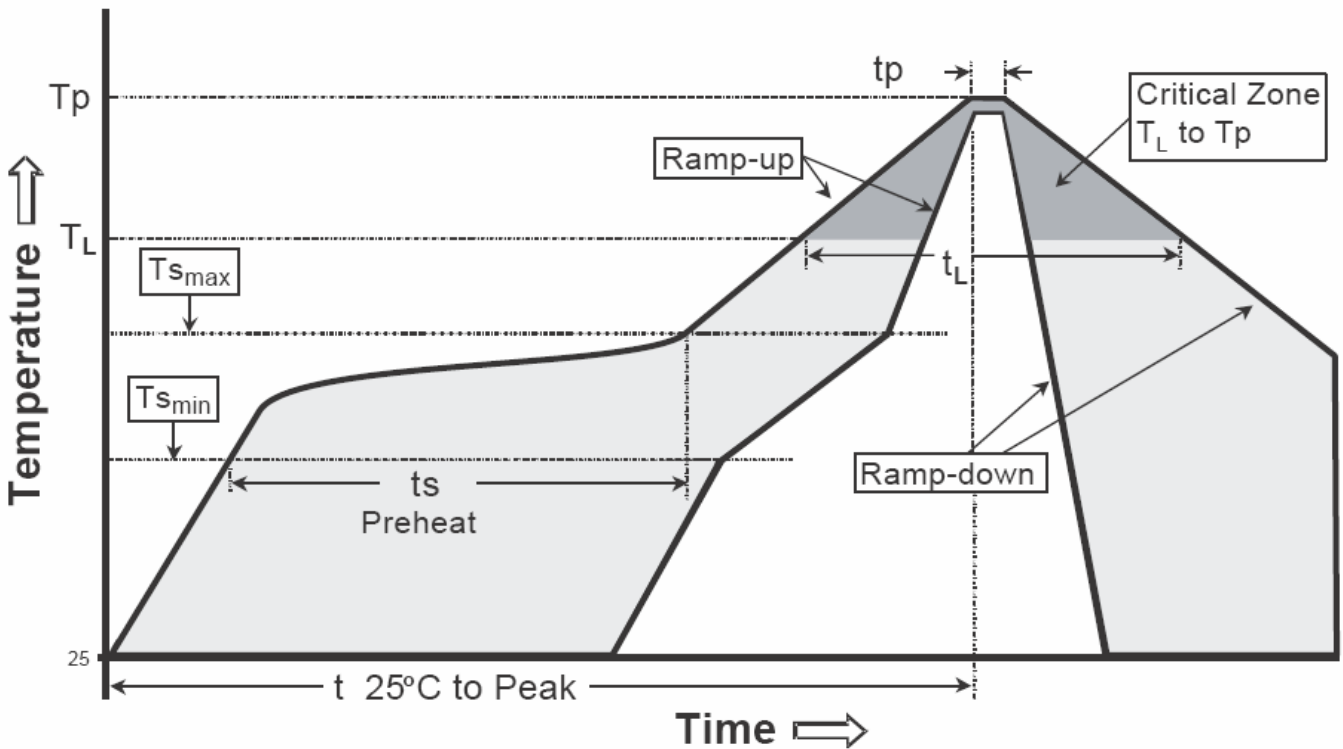
**Carrier Tape Dimension**



**Recommended wave soldering condition**

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

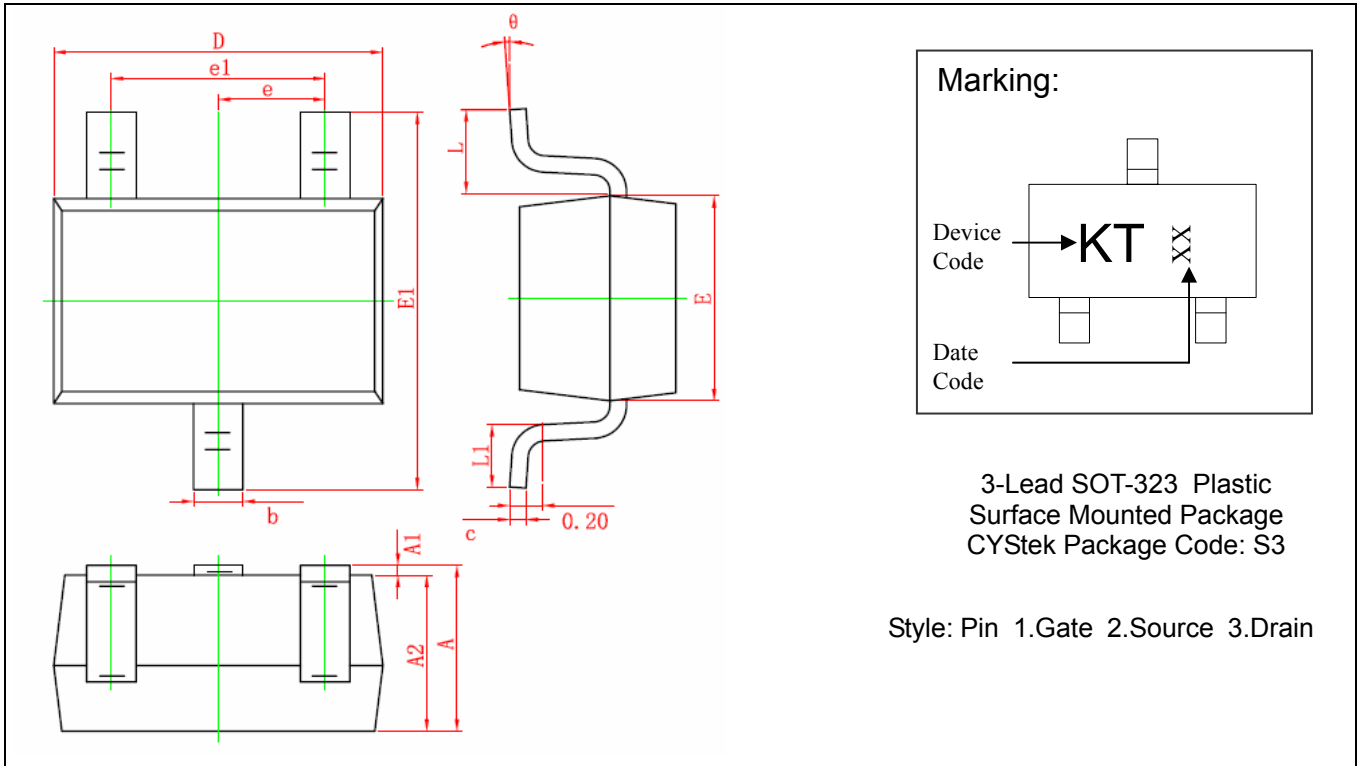
**Recommended temperature profile for IR reflow**



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Ts <sub>max</sub> to T <sub>p</sub> )	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T <sub>s min</sub> )	100°C	150°C
-Temperature Max(T <sub>s max</sub> )	150°C	200°C
-Time(t <sub>s min</sub> to t <sub>s max</sub> )	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T <sub>L</sub> )	183°C	217°C
- Time (t <sub>L</sub> )	60-150 seconds	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(tp)	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.

**SOT-323 Dimension**



DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.900	1.100	0.035	0.043	E1	2.150	2.450	0.085	0.096
A1	0.000	0.100	0.000	0.004	e	0.650	TYP	0.026	TYP
A2	0.900	1.000	0.035	0.039	e1	1.200	1.400	0.047	0.055
b	0.200	0.400	0.008	0.016	L	0.525	REF	0.021	REF
c	0.080	0.150	0.003	0.006	L1	0.260	0.460	0.010	0.018
D	2.000	2.200	0.079	0.087	θ	0°	8°	0°	8°
E	1.150	1.350	0.045	0.053					

**Notes:** 1.Controlling dimension: millimeters.  
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 3.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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