30V P-CHANNEL Enhancement Mode MOSFET

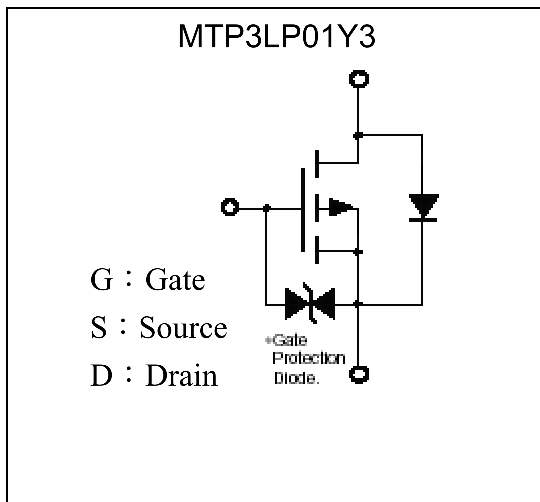
MTP3LP01Y3

BV_{DSS}	-30V
I_D	-230mA
$R_{DSON(typ)}$	3Ω@-4V
	4.6Ω@-2.5V
	10.9Ω@-1.5V

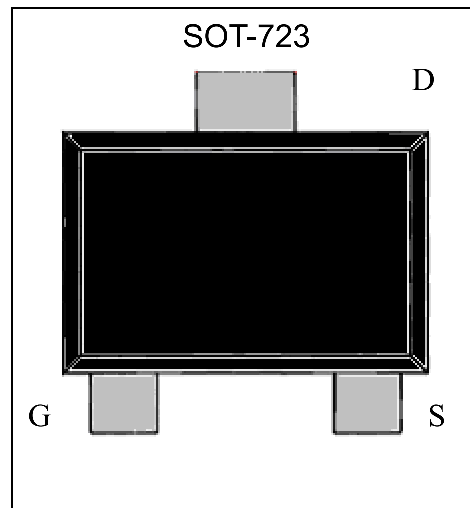
Features

- Ultra high speed switching.
- Low gate charge.
- 2.5V drive.
- ESD protected gate
- Pb-free package lead plating and halogen-free package.

Equivalent Circuit

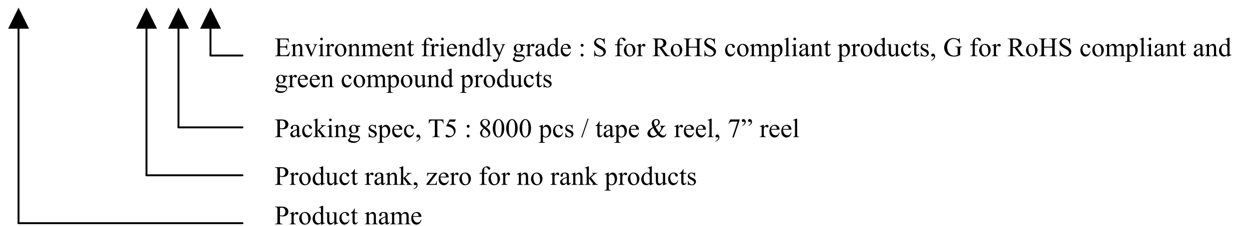


Outline



Ordering Information

Device	Package	Shipping
MTP3LP01Y3-0-T5-G	SOT-723 (Pb-free lead plating and halogen-free package)	8000 pcs / tape & reel



Absolute Maximum Ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±10	
Continuous Drain Current	I_D	-230	mA
Pulsed Drain Current (Note 1)	I_{DM}	-920	
Maximum Power Dissipation (Note 2)	P_D	150	mW
Thermal Resistance, Junction-to-Ambient	$R_{th,ja}$	833	°C/W
Operating Junction and Storage Temperature	Tj, Tstg	-55~+150	°C

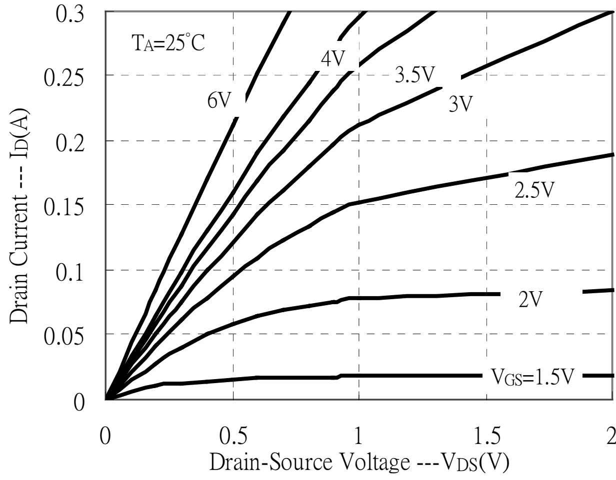
Note : 1. Pulse width≤ 10μs, duty cycle≤1%.
2. When mounted on a glass epoxy with a dimension of 100mm²x1mm.

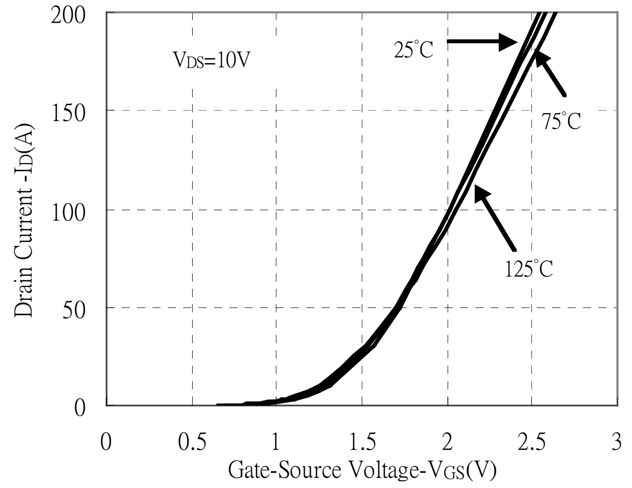
Electrical Characteristics (Ta=25°C, unless otherwise specified)

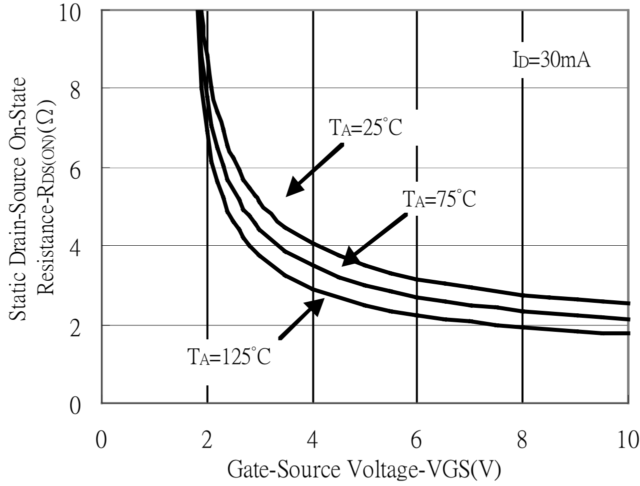
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	-30	-	-	V	V_{GS}=0V, I_D=-250μA
$V_{GS(th)}$	-0.6	0.9	-1.1		V_{DS}=-10V, I_D=-100μA
G_{FS}	100	210	-	mS	V_{DS}=-10V, I_D=-100mA
I_{GSS}	-	-	±1	μA	V_{GS}=±8V, V_{DS}=0V
I_{DSS}	-	-	-1		V_{DS}=-30V, V_{GS}=0V
	-	-	-10		V_{DS}=-24V, V_{GS}=0V, Tj=125°C
*$R_{DS(ON)}$	-	3	5	Ω	V_{GS}=-4V, I_D=-100mA
	-	4.6	8		V_{GS}=-2.5V, I_D=-30mA
	-	10.9	18		V_{GS}=-1.5V, I_D=-1mA
Dynamic					
Ciss	-	35.7	-	pF	V_{DS}=-20V, V_{GS}=0V, f=1MHz
Coss	-	11.9	-		
Crss	-	3.7	-		
*$t_{d(ON)}$	-	26.4	-	ns	V_{DS}=-15V, I_D=-100mA, V_{GS}=-4V, R_L=150Ω, R_G=50Ω
*t_r	-	12.8	-		
*$t_{d(OFF)}$	-	31.5	-		
*t_f	-	46.4	-		
*Qg	-	0.78	-	nC	V_{DS}=-10V, I_D=-100mA, V_{GS}=-10V
*Qgs	-	0.1	-		
*Qgd	-	0.1	-		
Source-Drain Diode					
*I_S	-	-	-230	mA	
*I_{SM}	-	-	-920		
*V_{SD}	-	0.83	-1.2	V	V_{GS}=0V, I_S=-100mA

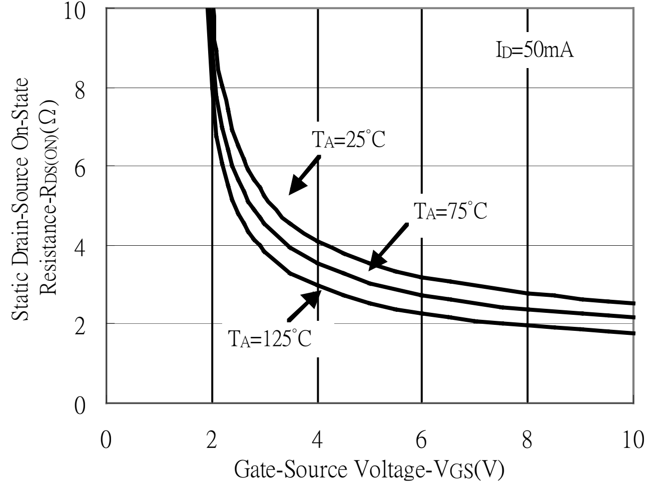
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

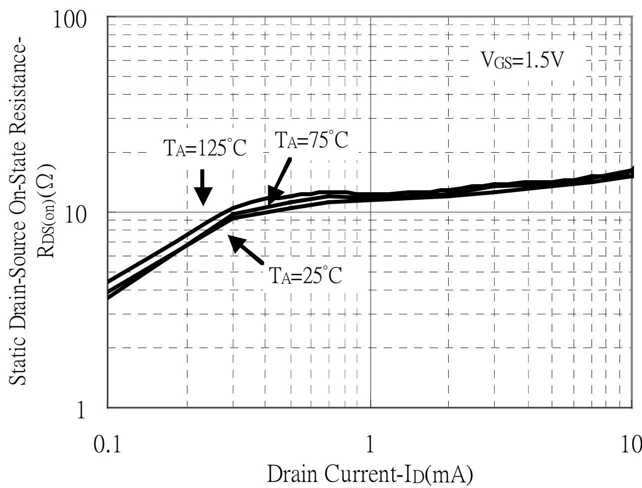
Typical Characteristics(The minus sign in voltage and current is omitted)

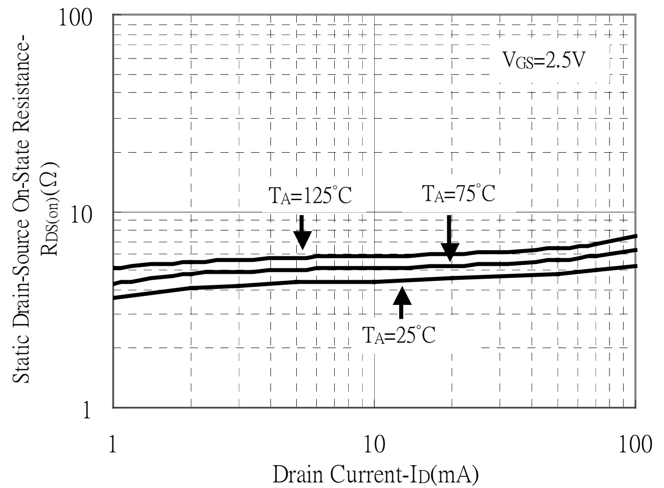




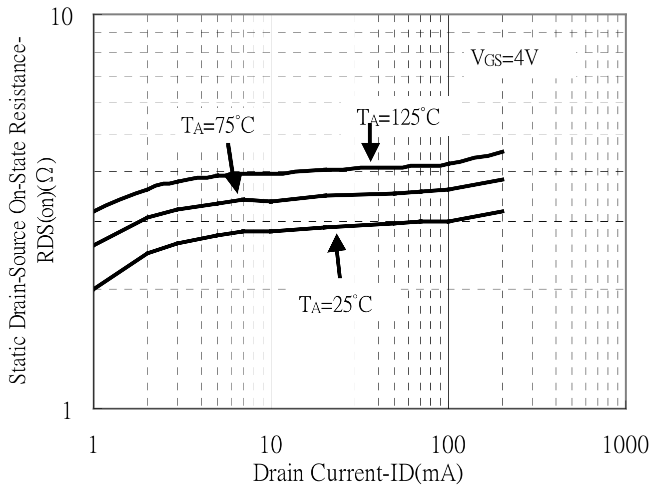


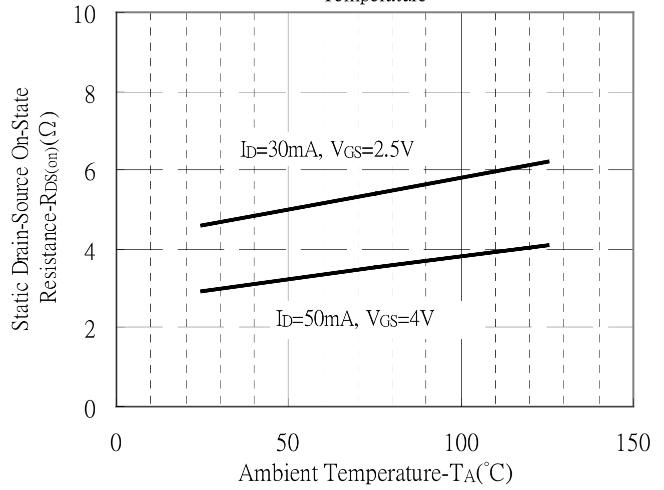


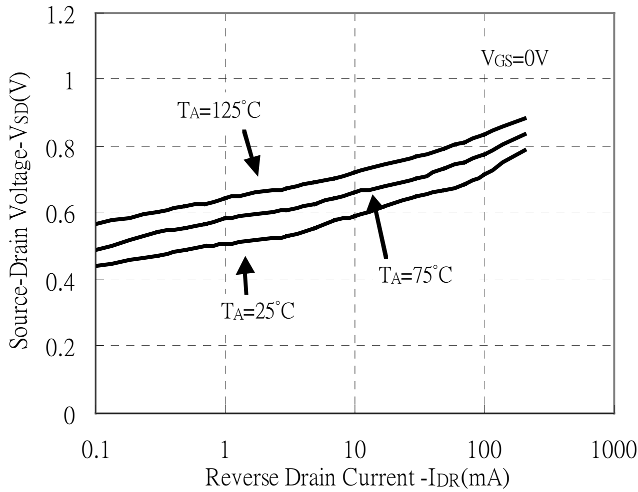


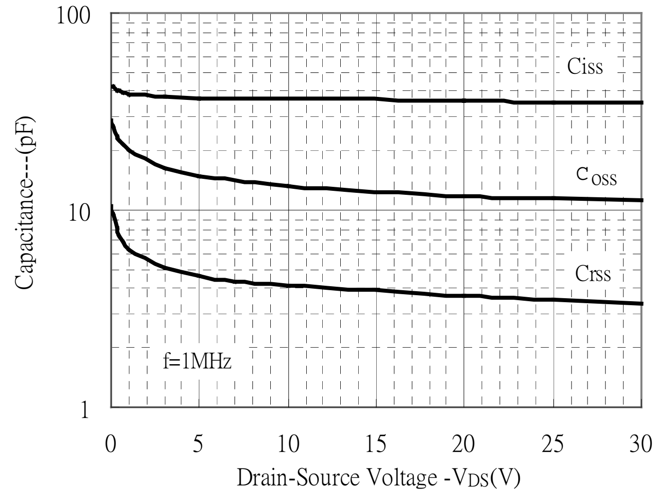


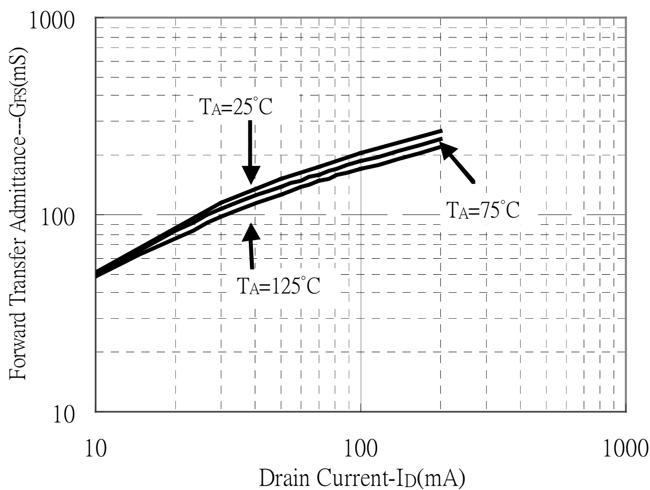
Typical Characteristics(Cont.)

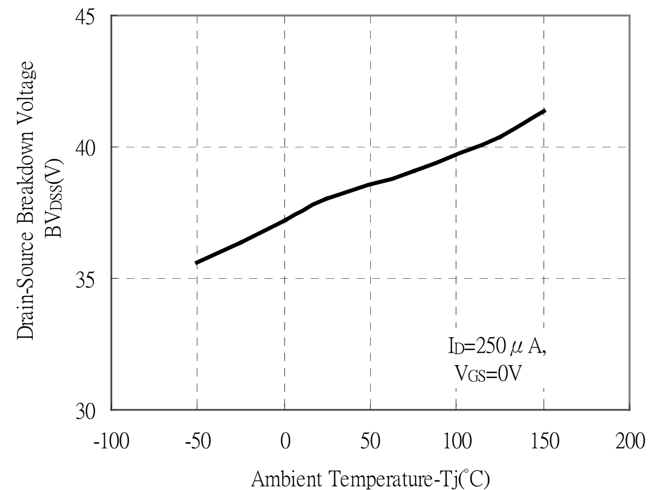




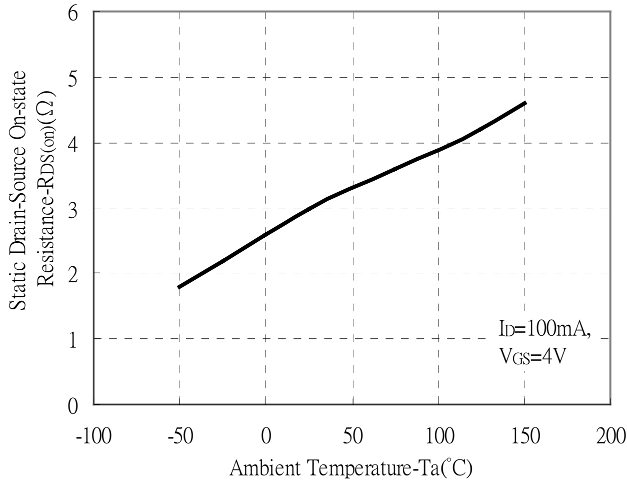


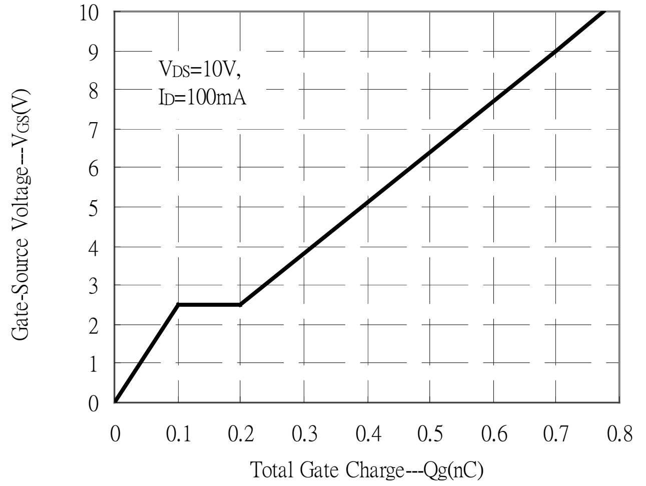


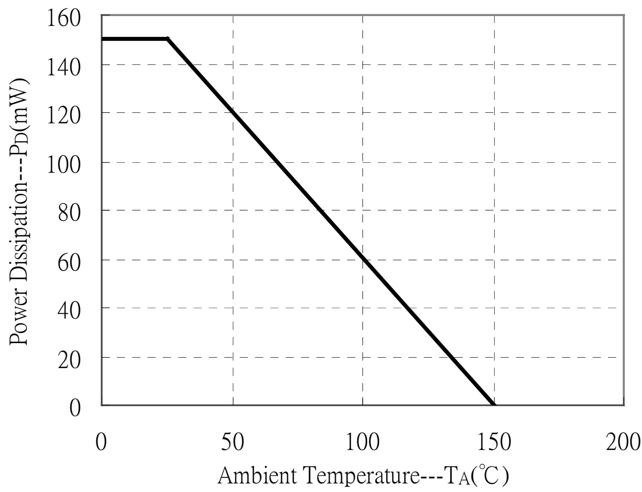




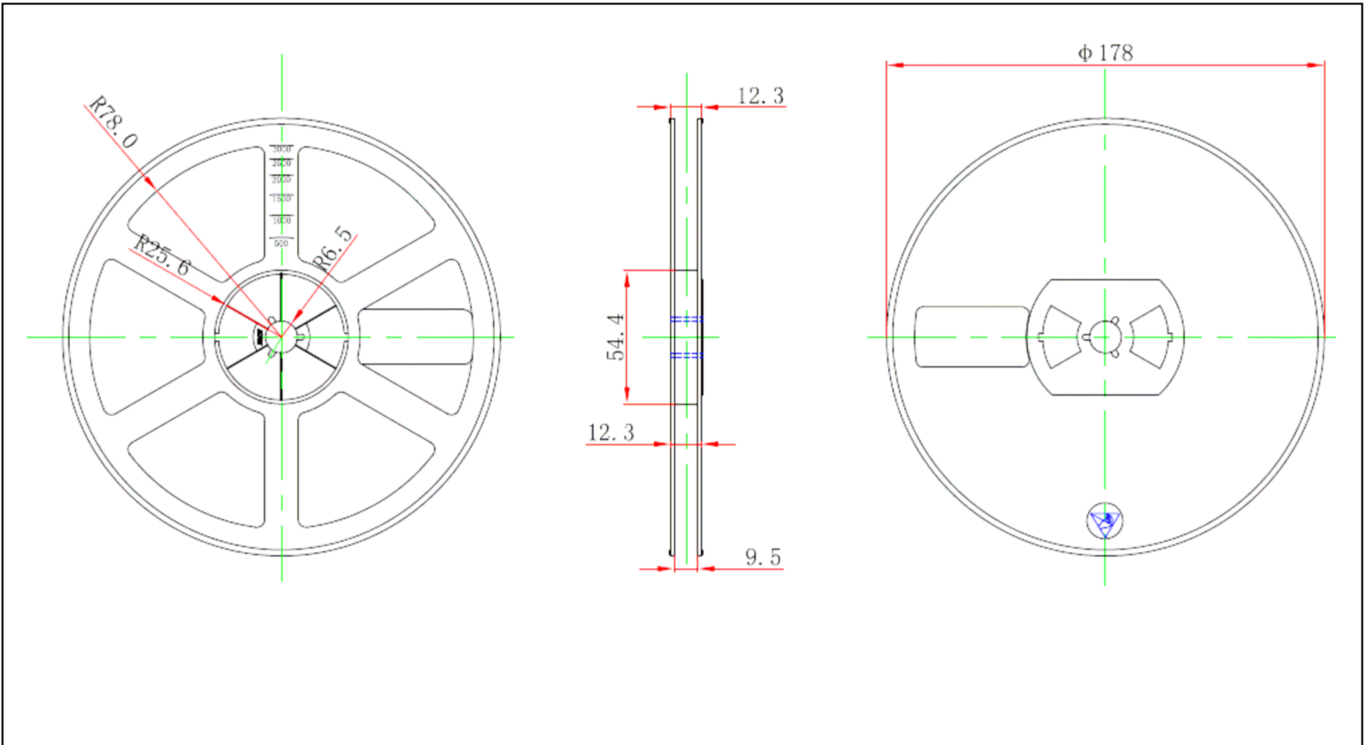
Typical Characteristics(Cont.)



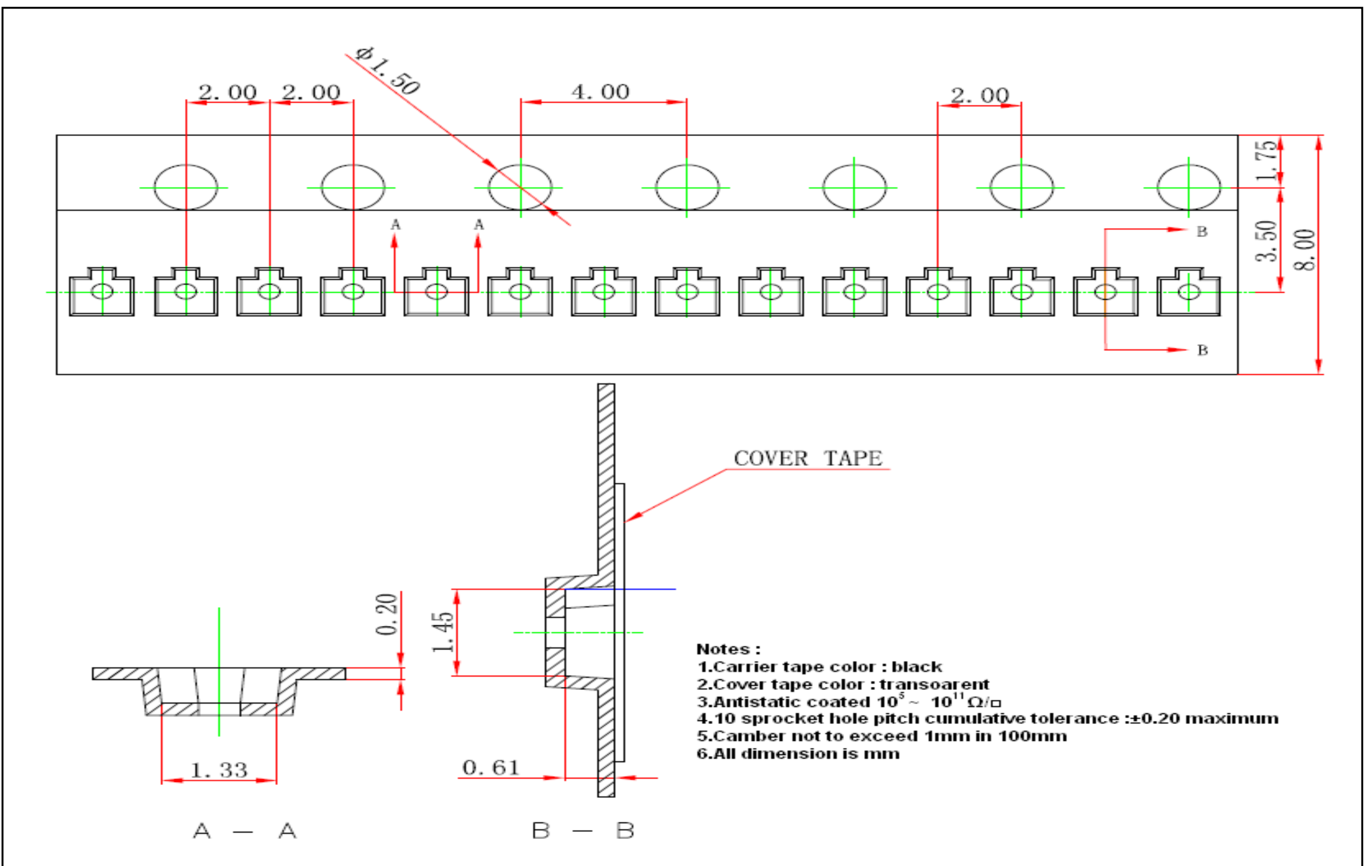




Reel Dimension



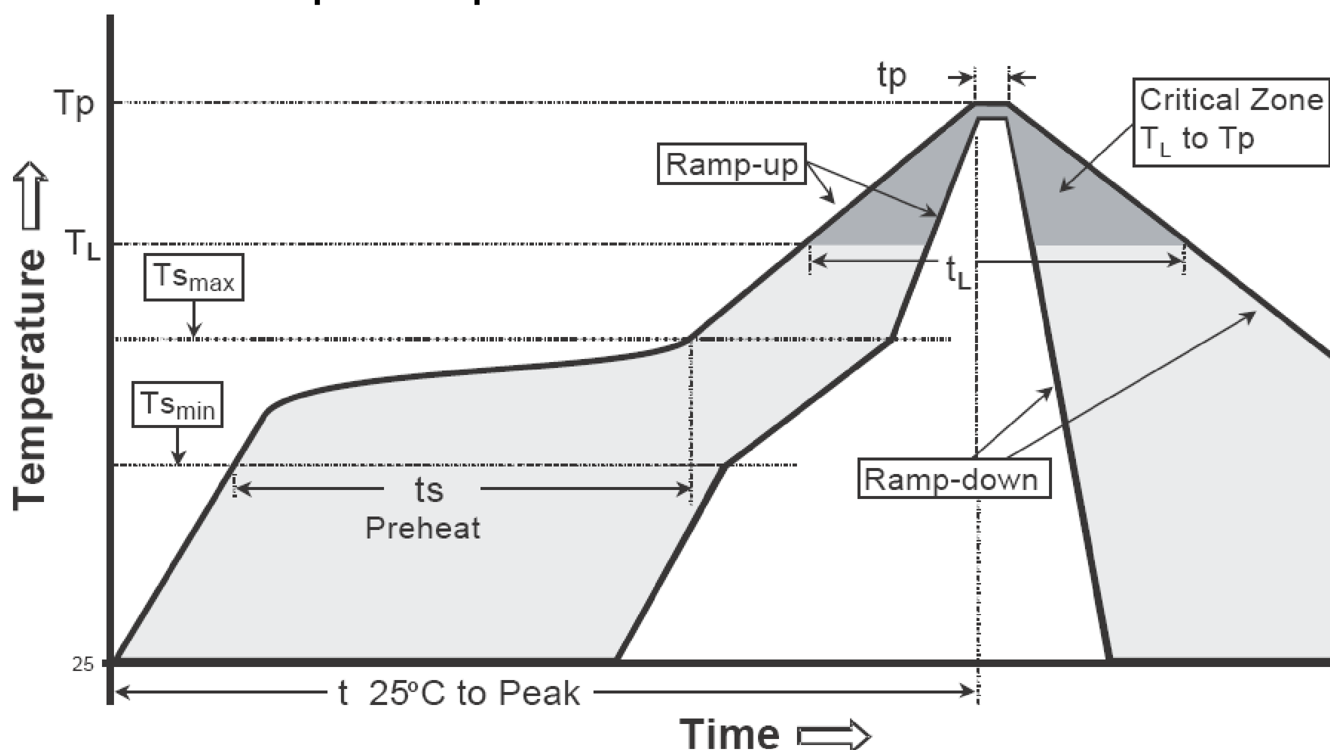
Carrier Tape Dimension



Recommended wave soldering condition

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

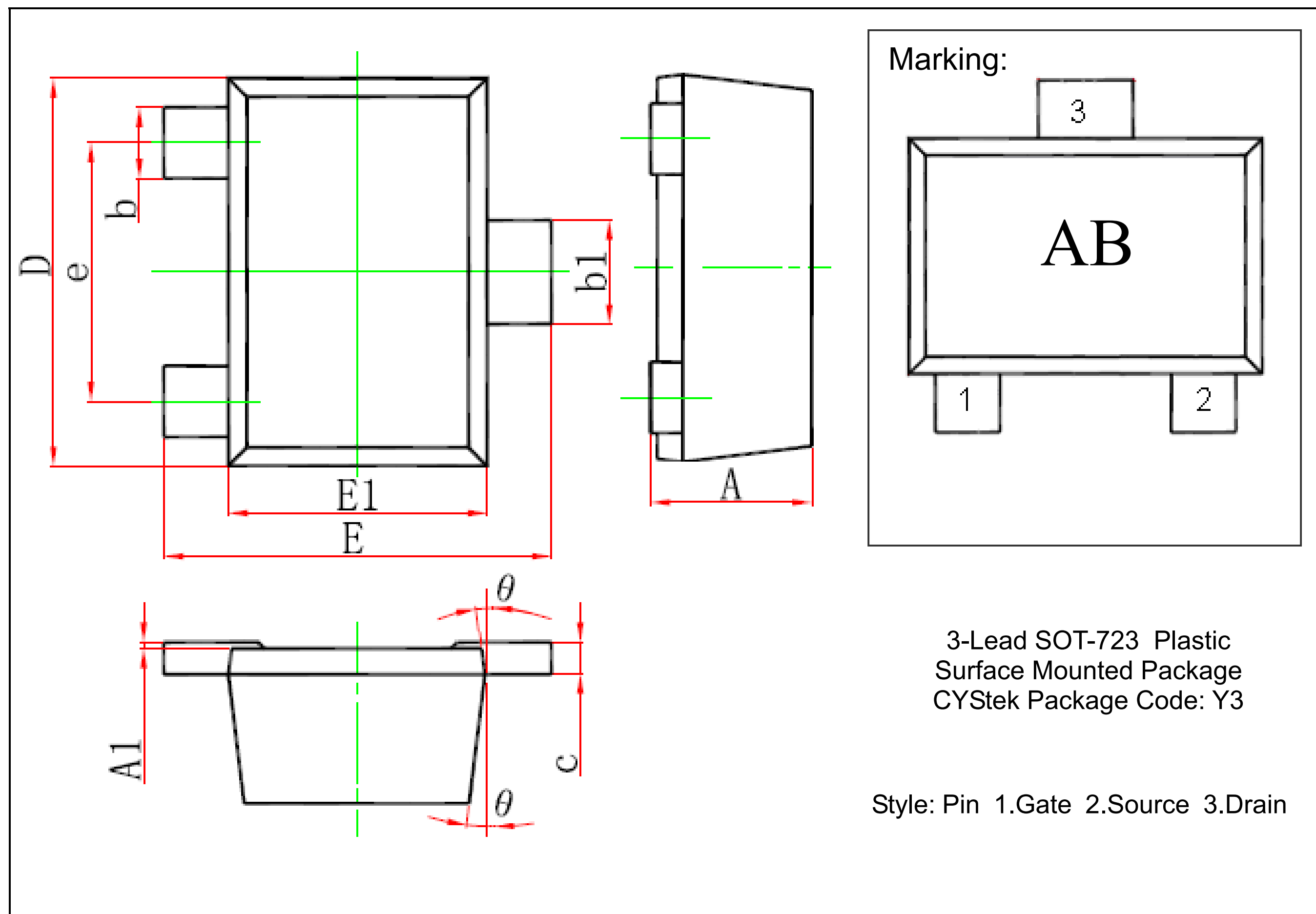
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(Ts min) −Temperature Max(Ts max) −Time(ts min to ts max)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (TL) − Time (tL)	 183°C 60-150 seconds	 217°C 60-150 seconds
Peak Temperature(TP)	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-723 Dimension



*Typical

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.000	0.500	0.000	0.020	D	1.150	1.250	0.045	0.049
A1	0.000	0.050	0.000	0.002	E	1.150	1.250	0.045	0.049
b	0.170	0.270	0.007	0.011	E1	0.750	0.850	0.030	0.033
b1	0.270	0.370	0.011	0.015	e	0.800*		0.031*	
c	0.000	0.150	0.000	0.006	θ	7° REF		7° REF	

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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