High Voltage NPN Epitaxial Planar Transistor

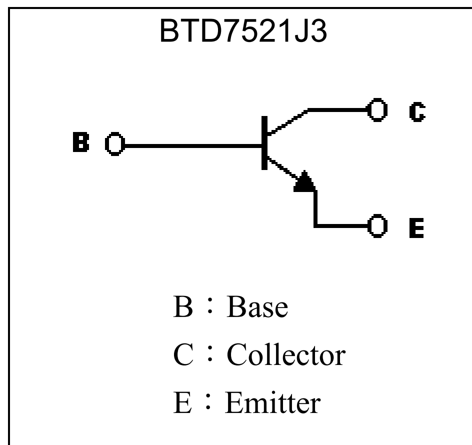
BTD7521J3

BV_{DSS}	90V
I_D	10A
$R_{CE(SAT)}$	0.1Ω

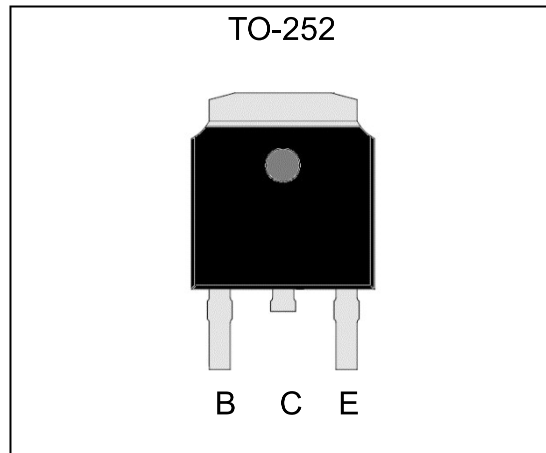
Features

- High BV_{CEO}
- Very high current gain
- Pb-free lead plating package

Symbol

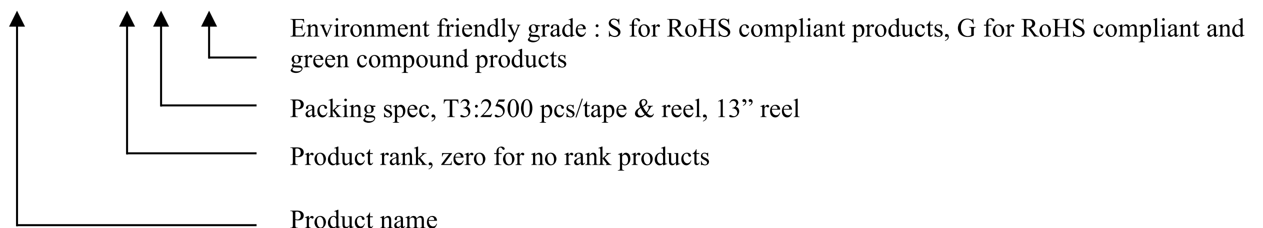


Outline



Ordering Information

Device	Package	Shipping
BTD7521J3-0-T3-G	TO-252 (RoHS compliant and halogen-free package)	2500 pcs / Tape & Reel



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	90	V
Collector-Emitter Voltage	V_{CEO}	90	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current (DC)	I_C	10	A
Collector Current (Pulse)	I_{CP}	20 (Note 1)	
Power Dissipation @ T_A=25℃	P_D	1.75 (Note 2)	W
Power Dissipation @ T_C=25℃	P_D	30	
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	71.4 (Note 2)	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	4.2	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

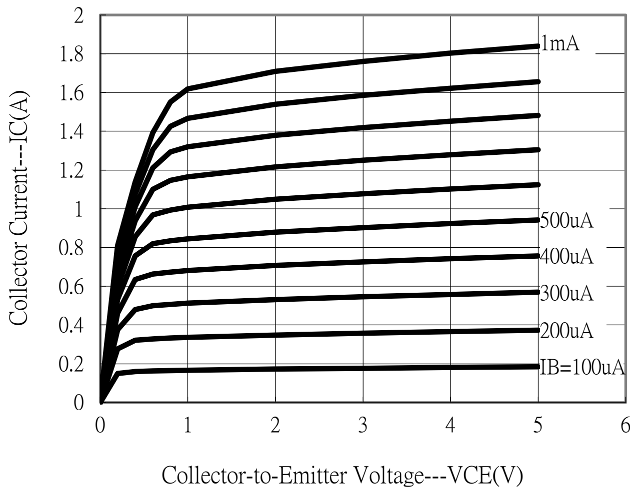
Note : 1. Single Pulse , Pw≦300μs,Duty≦2%.
2. When mounted on a PCB with the minimum pad size.

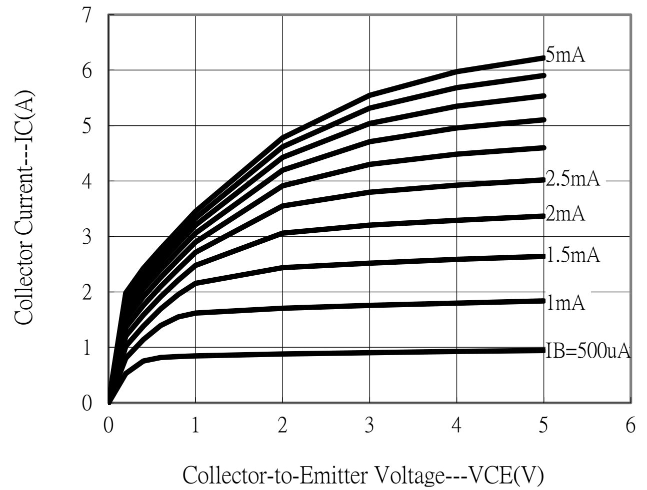
Characteristics (Ta=25°C)

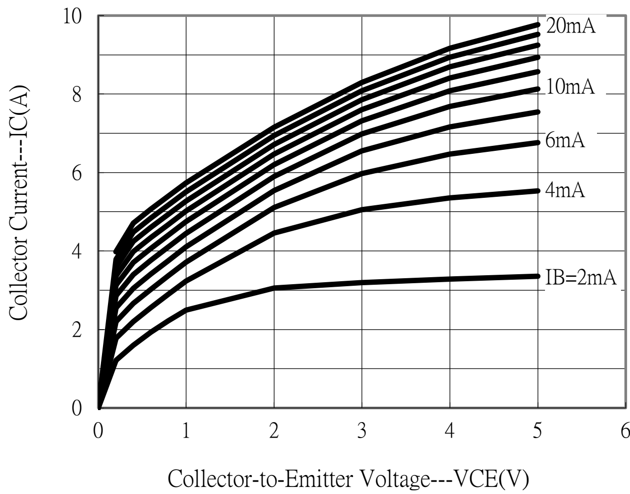
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	90	-	-	V	I_C=1mA, I_E=0
BV_{CEO}	90	-	-	V	I_C=10mA, I_B=0
BV_{EBO}	7	-	-	V	I_C=100μA, I_C=0
I_{CBO}	-	-	10	μA	V_{CB}=90V, I_E=0
I_{EBO}	-	-	10	μA	V_{EB}=7V, I_C=0
*$V_{CE(sat)}$	-	-	0.5	V	I_C=5A, I_B=50mA
*$R_{CE(sat)}$	-	-	0.1	Ω	I_C=5A, I_B=50mA
*$V_{BE(sat)}$	-	-	1.2	V	I_C=5A, I_B=50mA
*h_{FE}	1000	-	-	-	V_{CE}=5V, I_C=1A
*h_{FE}	500	-	-	-	V_{CE}=5V, I_C=5A
Cob	-	130	-	pF	V_{CB}=10V, f=1MHz

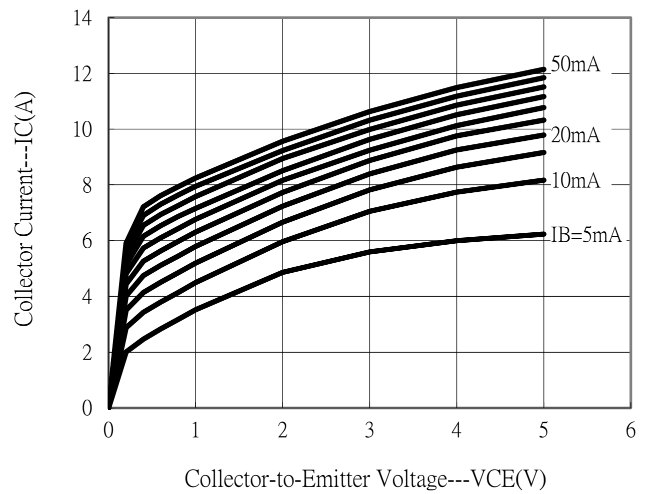
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

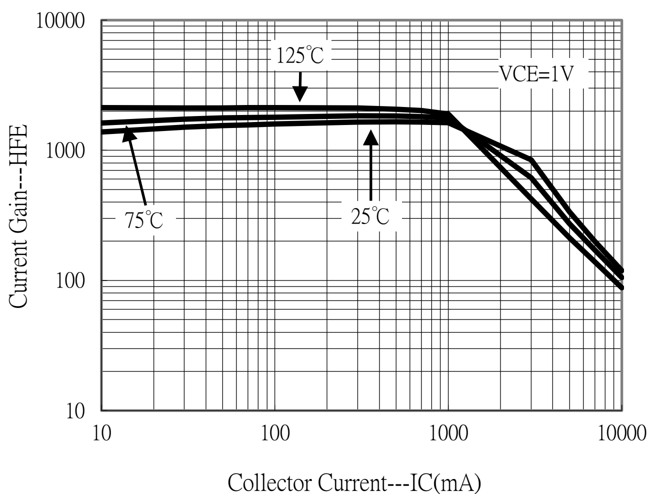
Typical Characteristics

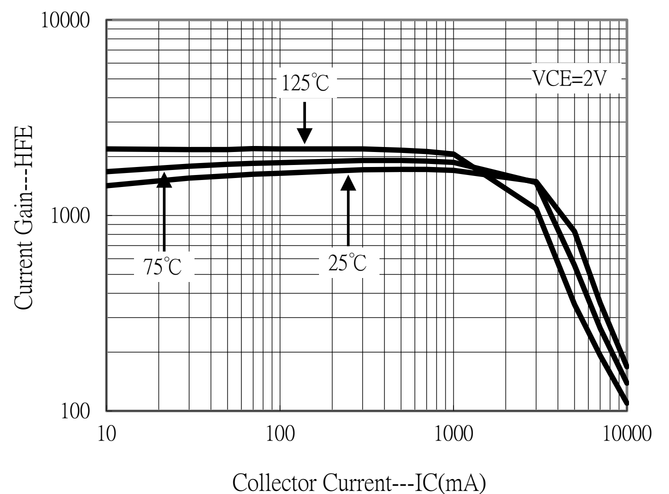




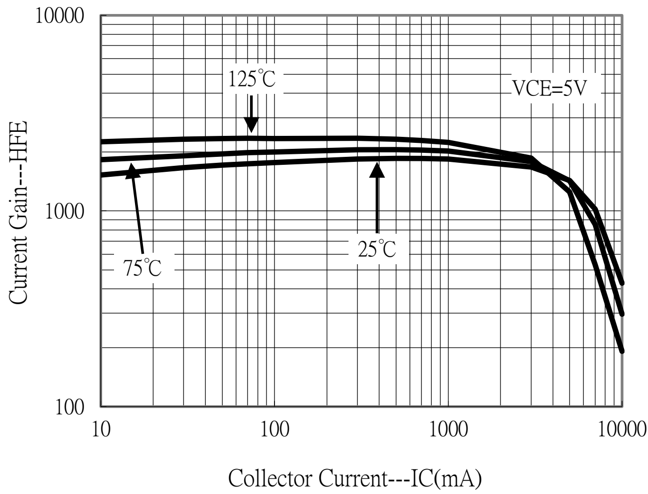


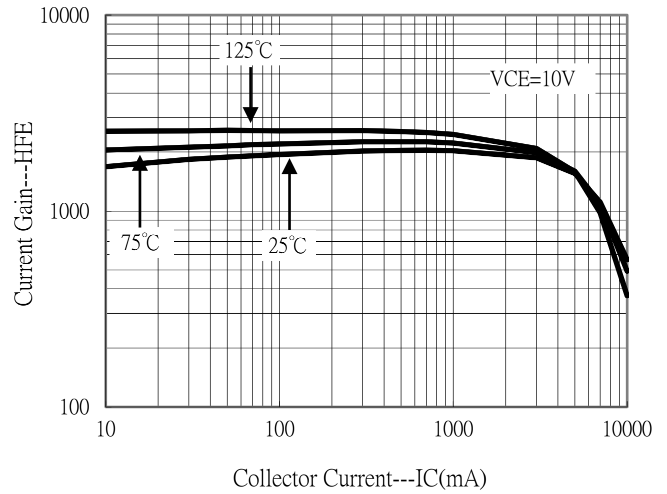


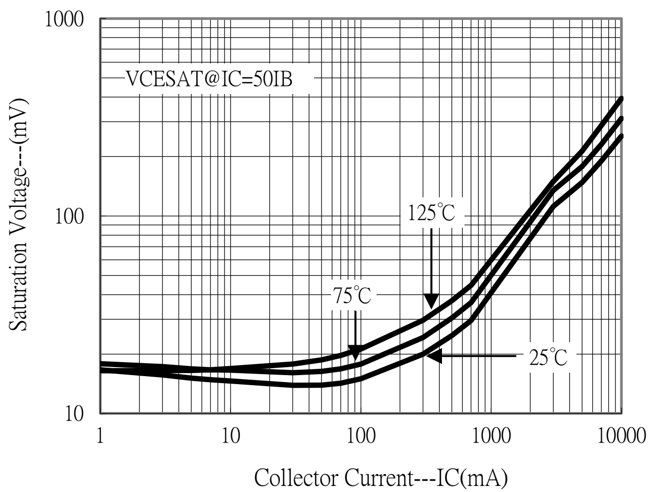


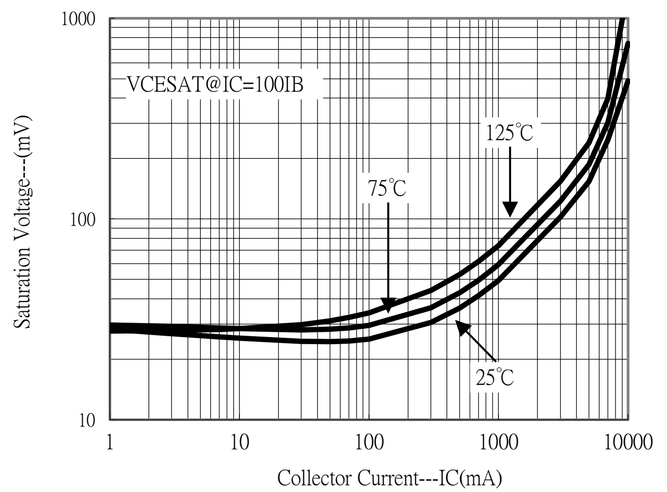


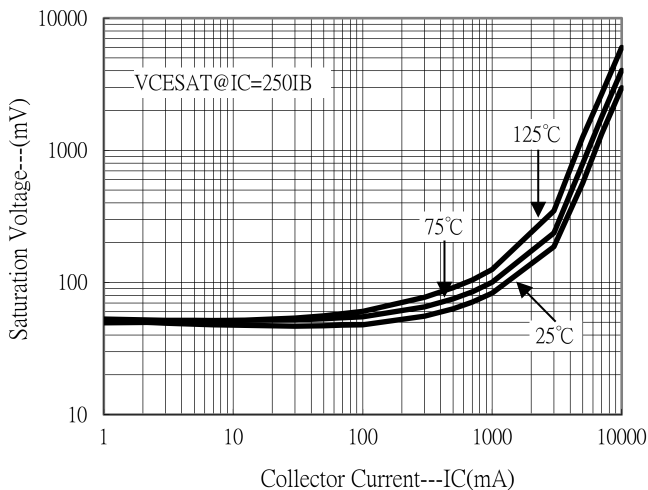
Typical Characteristics(Cont.)

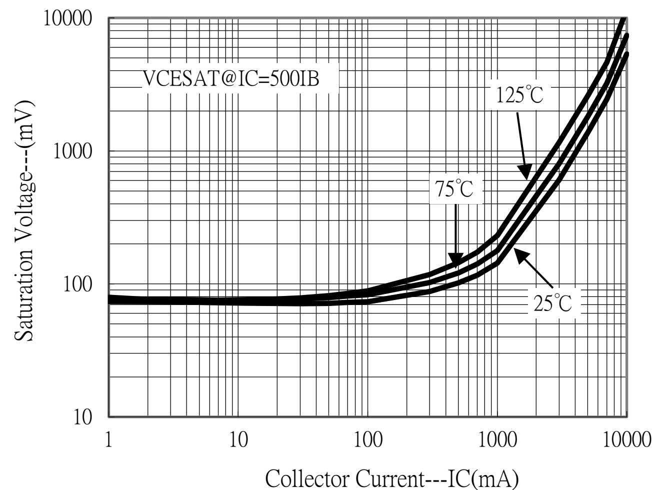












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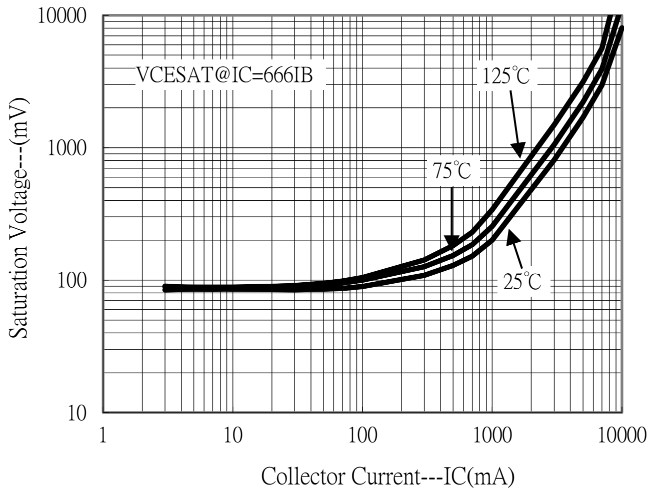
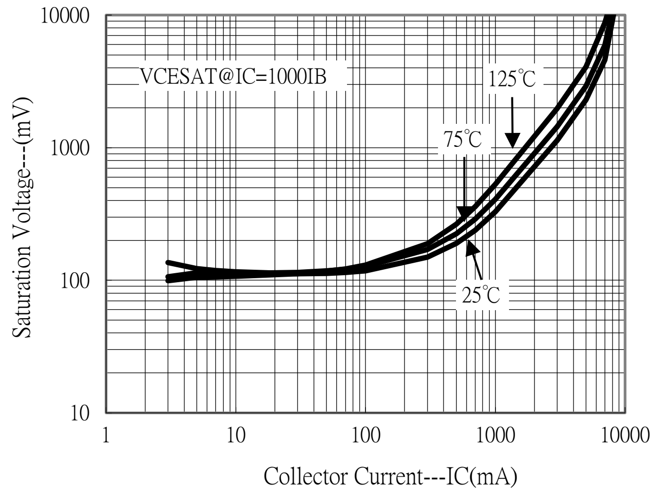
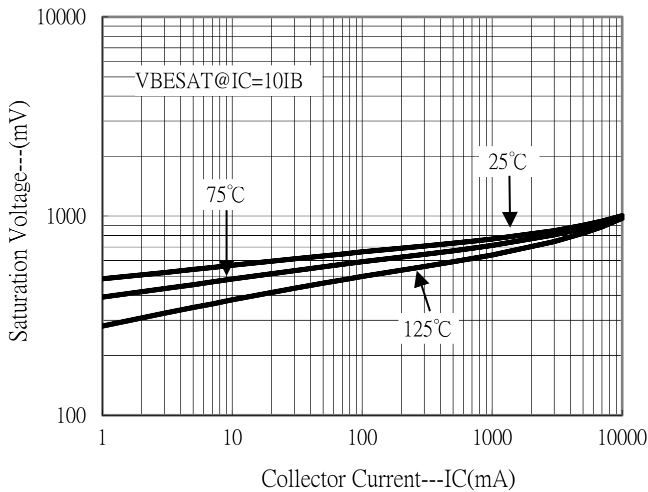
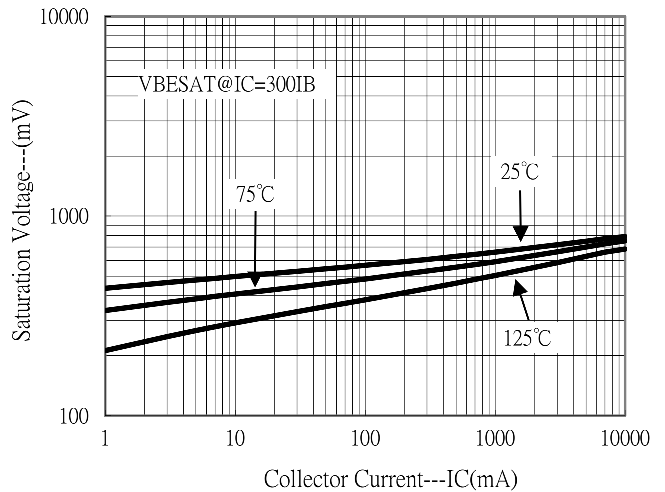
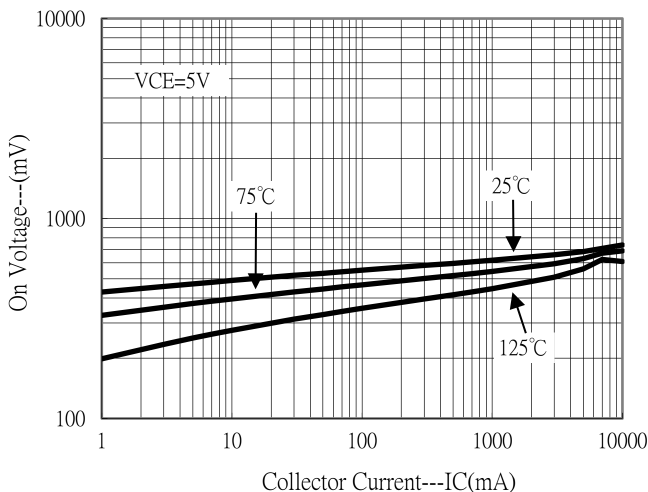
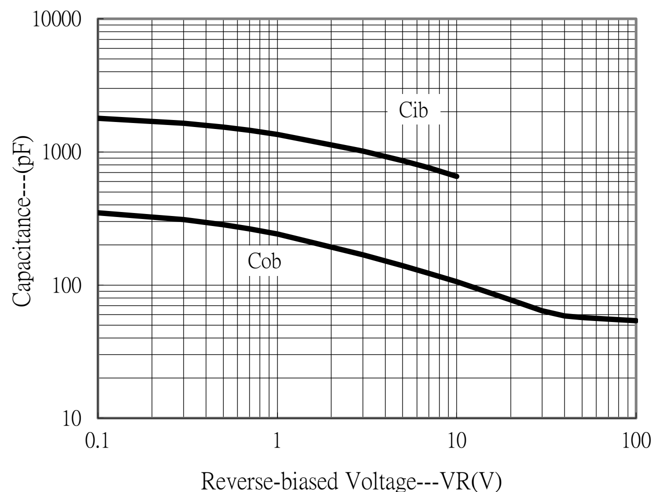




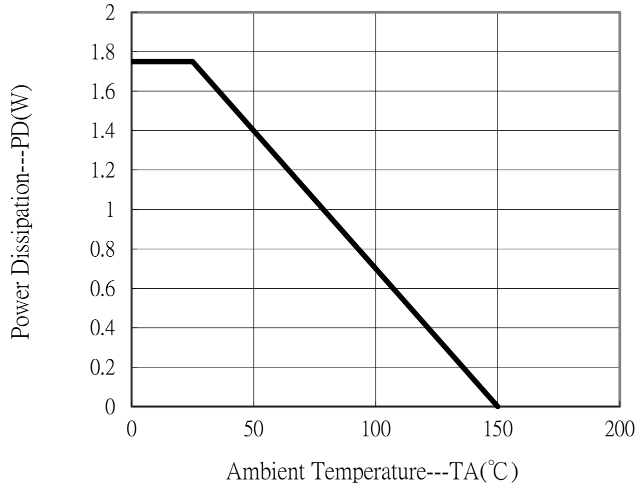


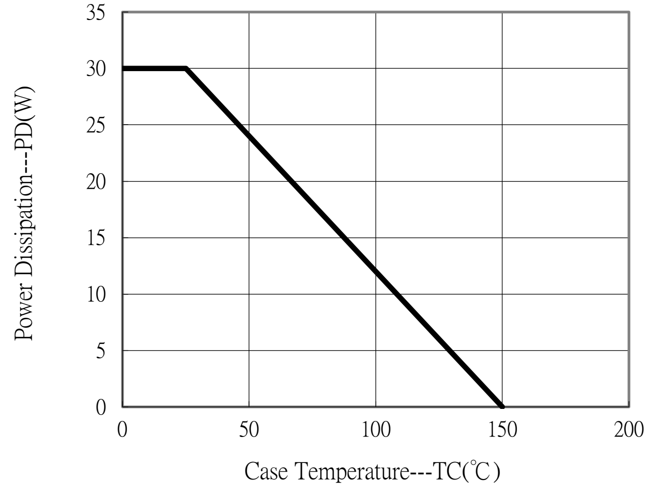




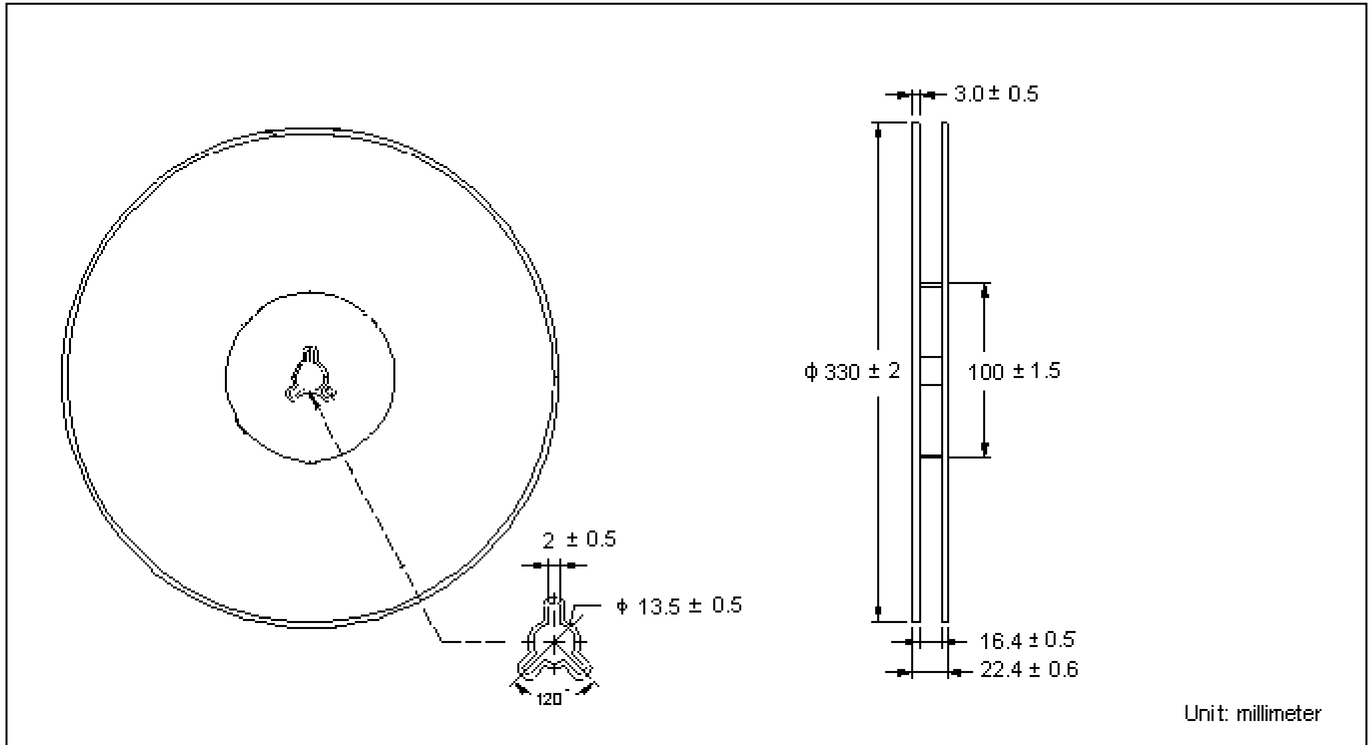


Typical Characteristics(Cont.)

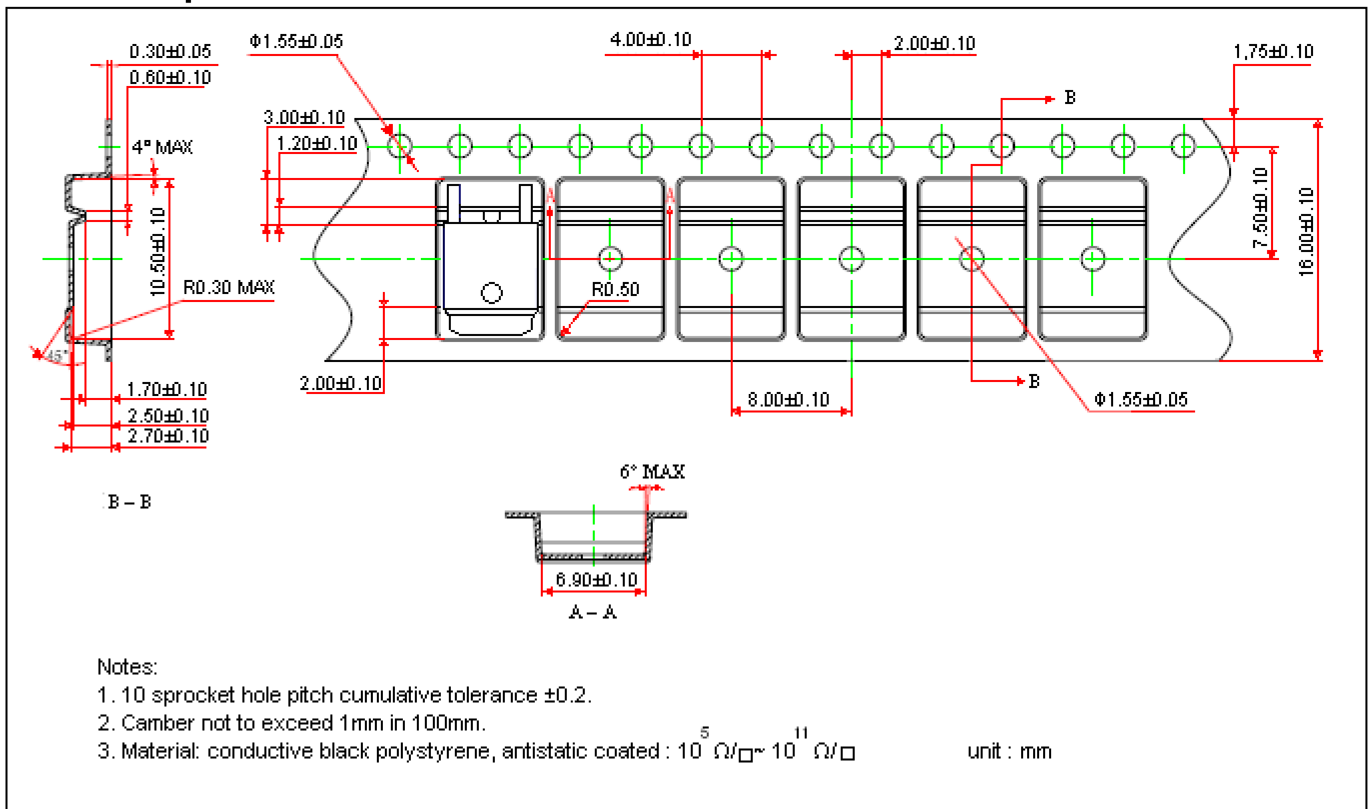




Reel Dimension



Carrier Tape Dimension

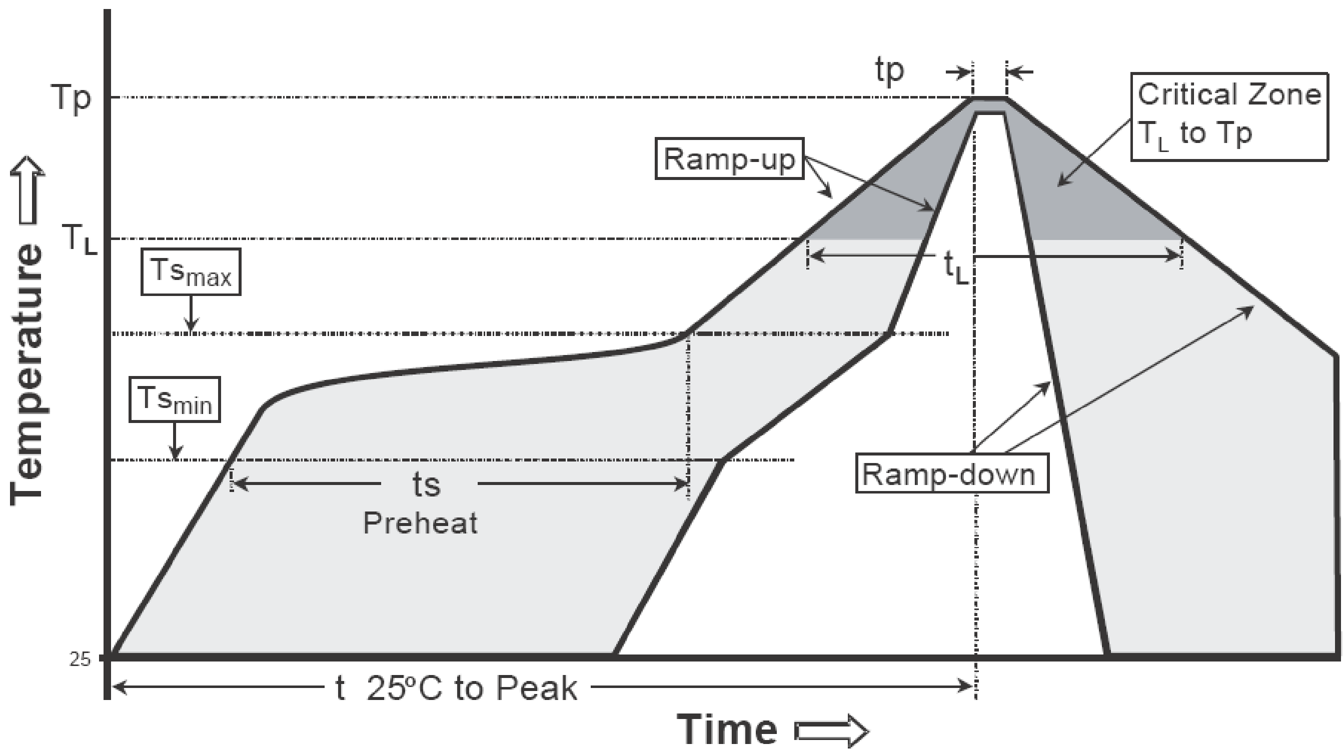


Notes:
1. 10 sprocket hole pitch cumulative tolerance ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: conductive black polystyrene, antistatic coated : 10^5 Ω/□~ 10^{11} Ω/□ unit : mm

Recommended wave soldering condition

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

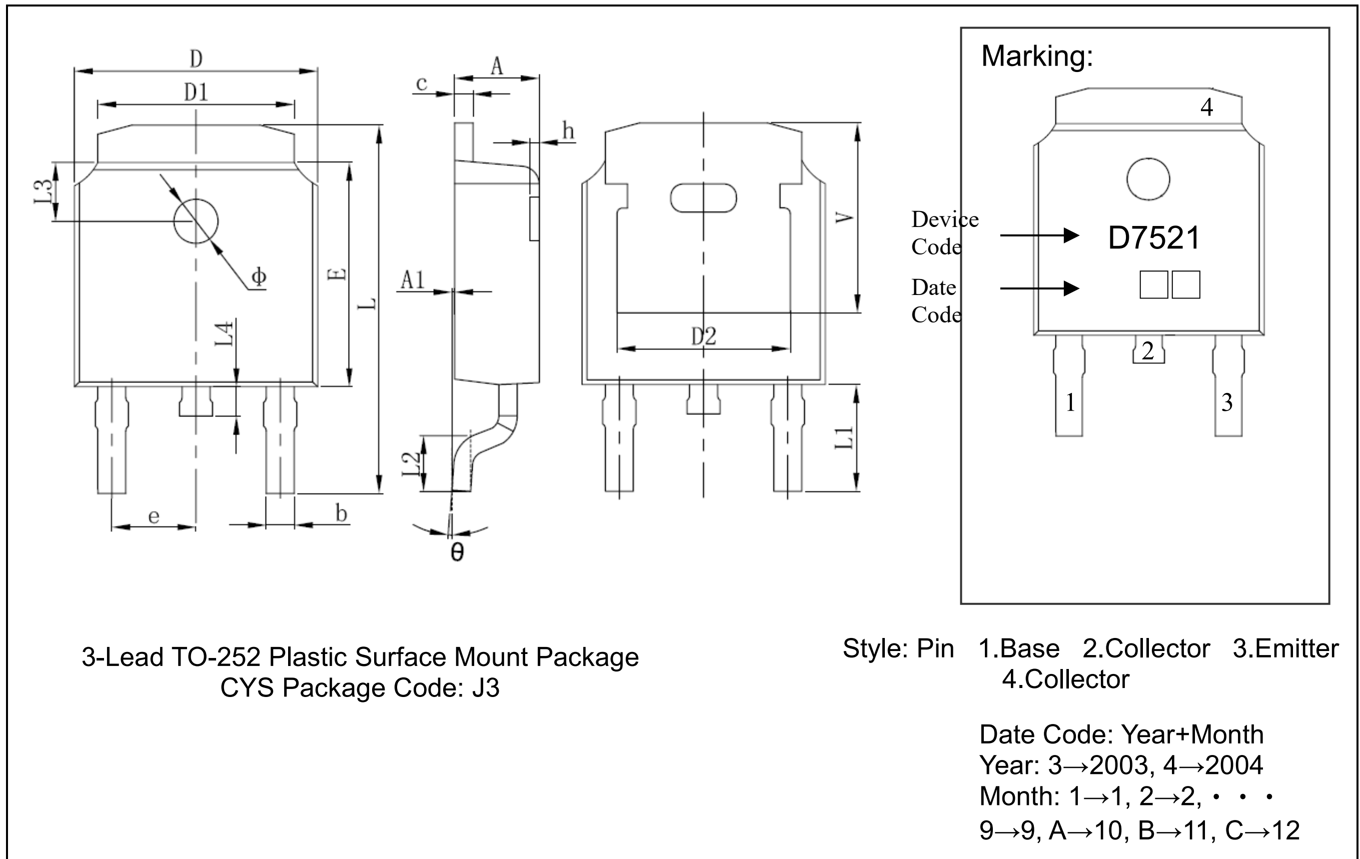
Recommended temperature profile for IR reflow



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(T_S min) −Temperature Max(T_S 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 (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(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.

TO-252 Dimension



3-Lead TO-252 Plastic Surface Mount Package
CYS Package Code: J3

Style: Pin 1.Base 2.Collector 3.Emitter 4.Collector

Date Code: Year+Month
Year: 3→2003, 4→2004
Month: 1→1, 2→2, • • •
9→9, A→10, B→11, C→12

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.087	0.094	2.200	2.400	L	0.382	0.406	9.712	10.312
A1	0.000	0.005	0.000	0.127	L1	0.114	REF	2.900	REF
b	0.025	0.030	0.635	0.770	L2	0.055	0.067	1.400	1.700
c	0.018	0.023	0.460	0.580	L3	0.063	REF	1.600	REF
D	0.256	0.264	6.500	6.700	L4	0.024	0.039	0.600	1.000
D1	0.201	0.215	5.100	5.460	Φ	0.043	0.051	1.100	1.300
D2	0.190	REF	4.830	REF	θ	0°	8°	0°	8°
E	0.236	0.244	6.000	6.200	h	0.000	0.012	0.000	0.300
e	0.086	0.094	2.186	2.386	V	0.207	REF	5.250	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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