

PNP Epitaxial Planar High Current (High Performance) Transistor

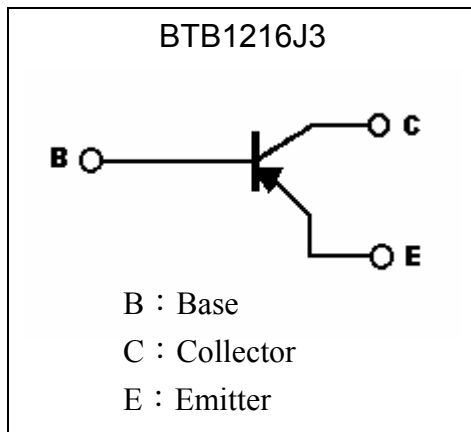
BTB1216J3

BV_{CEO}	-140V
I_C	-4A
$R_{CE(SAT)}$	90m Ω typ.

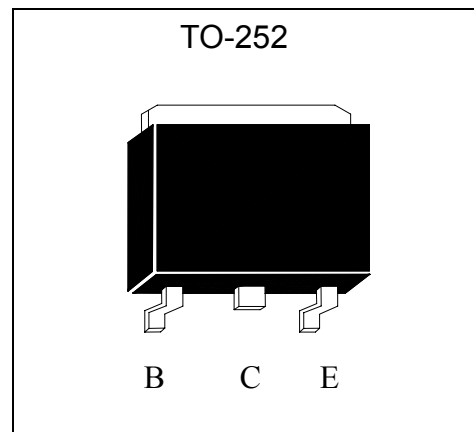
Features

- 4 Amps continuous current, up to 10 Amps peak current
- Very low saturation voltage
- Excellent gain characteristics specified up to 3 Amps
- Extremely low equivalent on resistance, $R_{CE(SAT)}=90m\Omega$ at 3A
- RoHS compliant package

Symbol



Outline



Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	-180	V
Collector-Emitter Voltage	V_{CEO}	-140	V
Emitter-Base Voltage	V_{EBO}	-6	V
Continuous Collector Current	I_C	-4	A
Peak Collector Current	I_{CP}	-10 (Note 1)	A
Base Current	I_B	-1	A
Power Dissipation @Ta=25°C	P_d	1	W
Power Dissipation @Tc=25°C		20	
Operating and Storage Temperature Range	$T_j ; T_{stg}$	-55 ~ +150	°C

Note: 1.Single pulse, $P_w \leq 10ms$



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

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	-180	-210	-	V	I _C =-100μA
*BV _{CEO}	-140	-170	-	V	I _C =-10mA
BV _{EBO}	-6	-8	-	V	I _E =-100μA
I _{CBO}	-	-	-50	nA	V _{CB} =-150V
I _{EBO}	-	-	-10	nA	V _{EB} =-6V
*V _{CE(sat)1}	-	-40	-60	mV	I _C =-100mA, I _B =-5mA
*V _{CE(sat)2}	-	-70	-120	mV	I _C =-500mA, I _B =-50mA
*V _{CE(sat)3}	-	-110	-150	mV	I _C =-1A, I _B =-100mA
*V _{CE(sat)4}	-	-270	-370	mV	I _C =-3A, I _B =-300mA
*V _{BE(sat)}	-	-930	-1110	mV	I _C =-3A, I _B =-300mA
*V _{BE(on)}	-	-830	-950	mV	V _{CE} =-5V, I _C =-3A
h _{FE1}	100	200	-	-	V _{CE} =-5V, I _C =-10mA
*h _{FE2}	150	200	400	-	V _{CE} =-5V, I _C =-1A
*h _{FE3}	75	140	-	-	V _{CE} =-5V, I _C =-3A
*h _{FE4}	-	10	-	-	V _{CE} =-5V, I _C =-10A
f _T	-	110	-	MHz	V _{CE} =-10V, I _C =-100mA, f=50MHz
Cob	-	40	-	pF	V _{CB} =-20V, f=1MHz

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

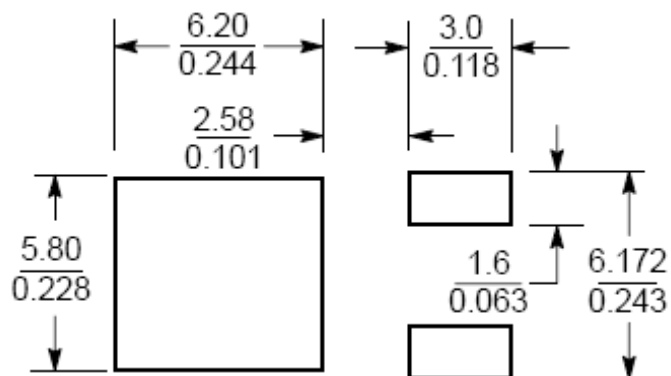
Classification Of h_{FE2}

Rank	R	S
Range	150~300	200~400

Ordering Information

Device	Package	Shipping	Marking
BTB1216J3	TO-252 (RoHS compliant)	2500 pcs / Tape & Reel	B1216

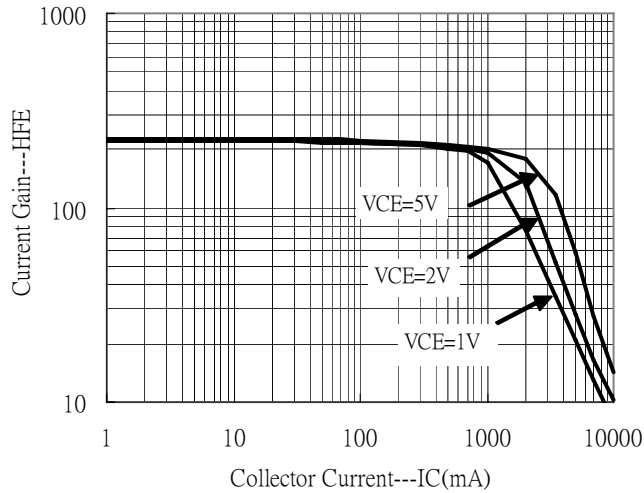
Recommended soldering footprint



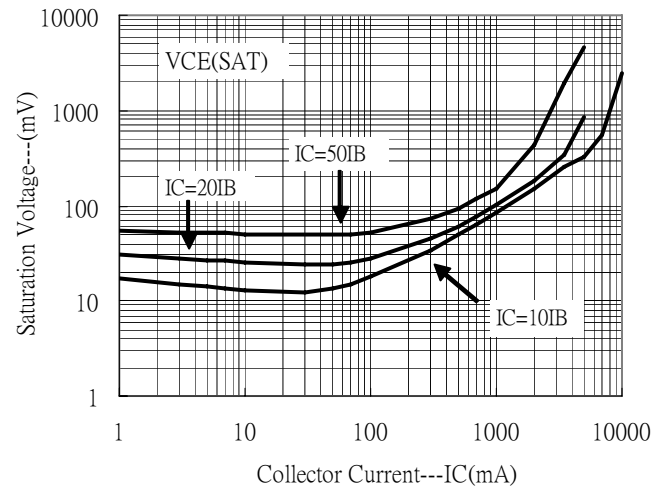
Unit ($\frac{\text{mm}}{\text{inch}}$)

Characteristic Curves

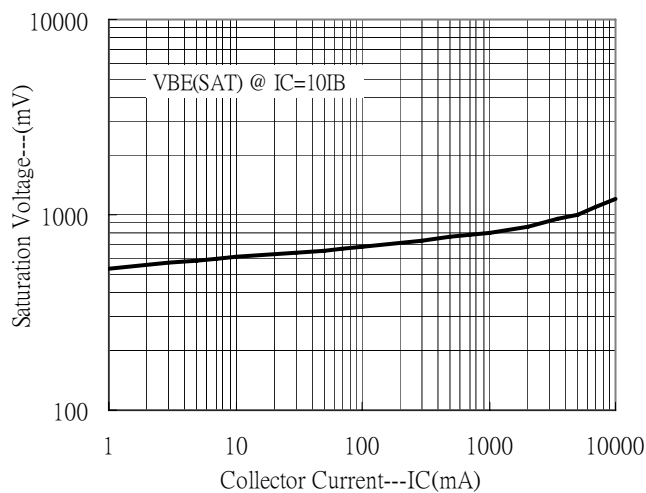
Current Gain vs Collector Current



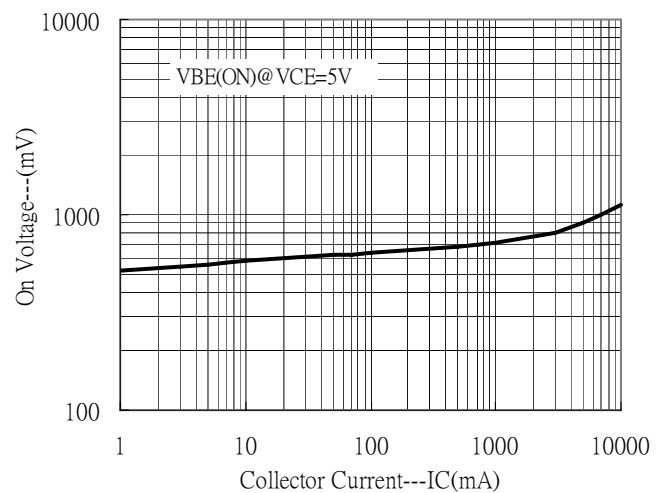
Saturation Voltage vs Collector Current



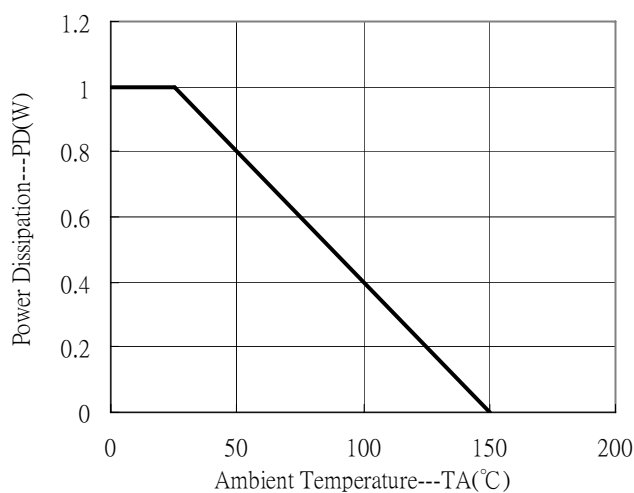
Saturation Voltage vs Collector Current



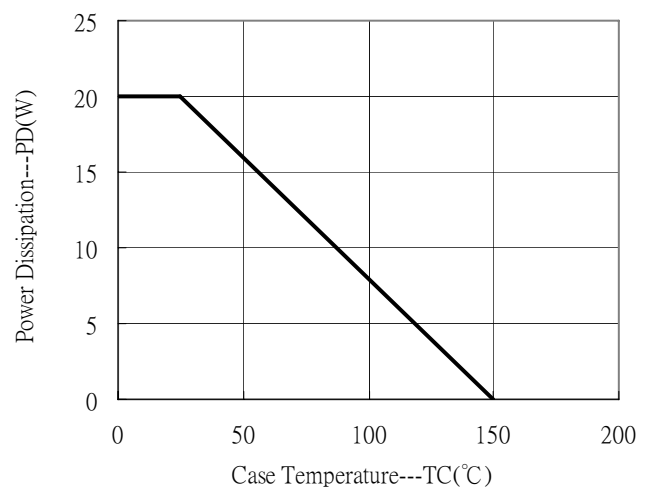
On Voltage vs Collector Current



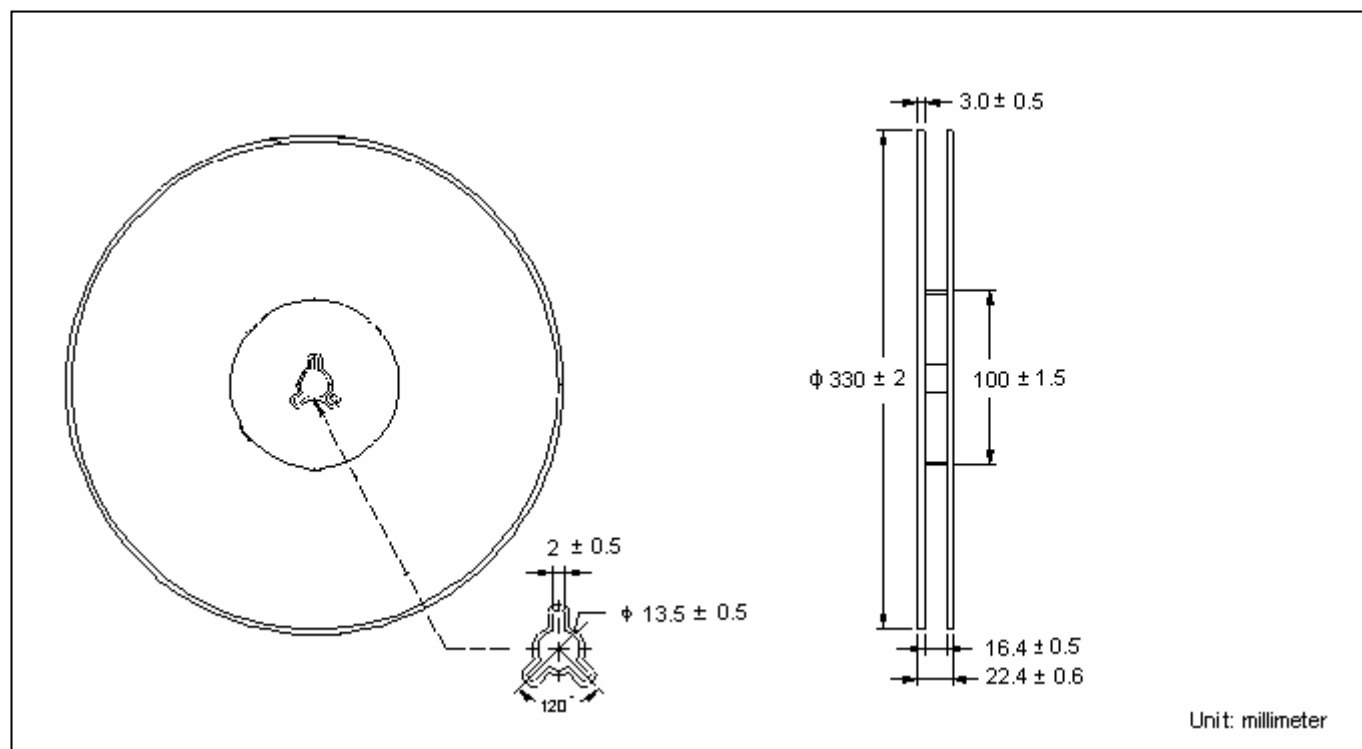
Power Derating Curve



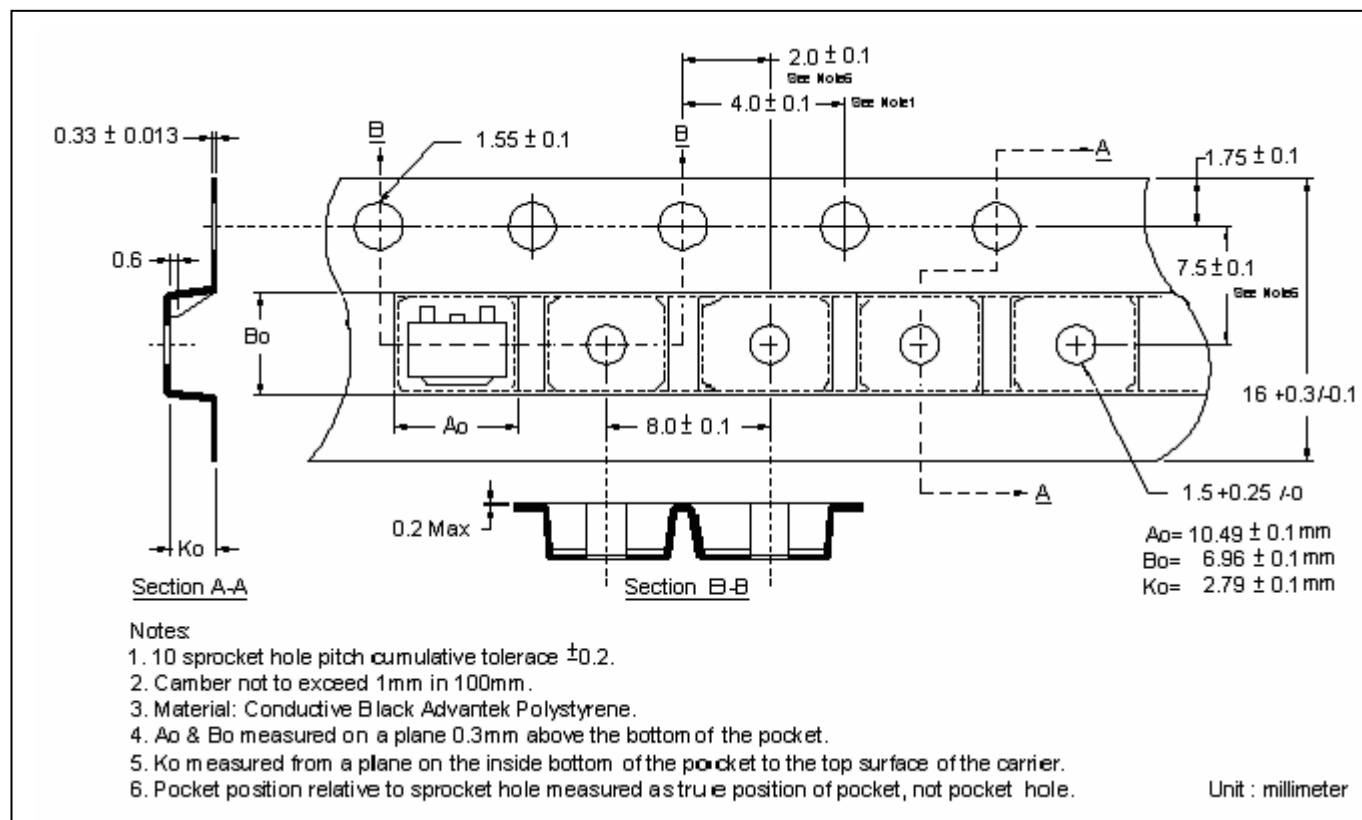
Power Derating Curve



Reel Dimension



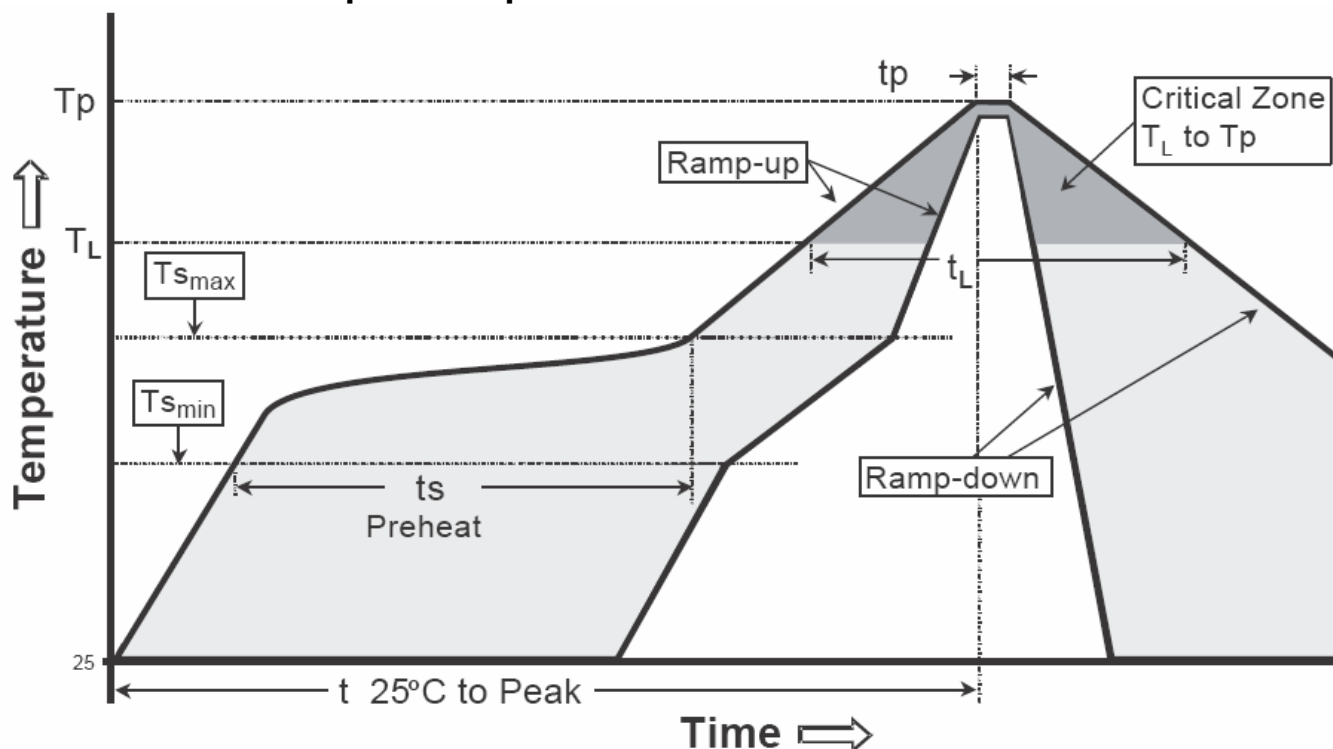
Carrier Tape Dimension



Recommended wave soldering condition

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

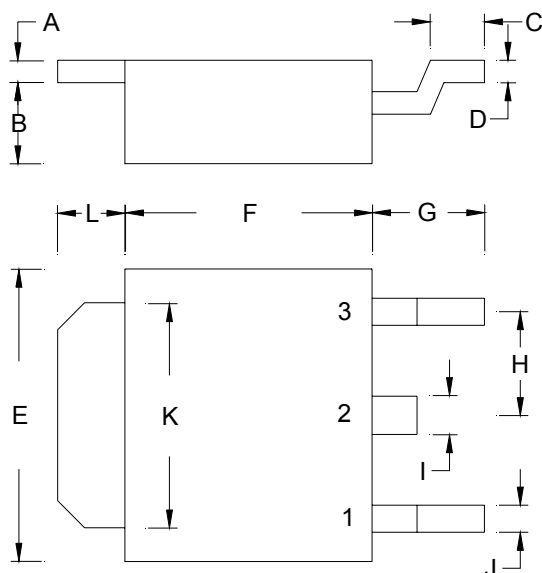
Recommended temperature profile for IR reflow



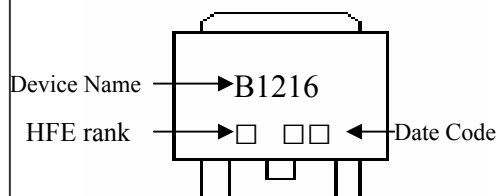
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(Ts min)	100°C	150°C
-Temperature Max(Ts max)	150°C	200°C
-Time(ts min to ts max)	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (Tl)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

TO-252 Dimension



Marking:



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

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

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0177	0.0217	0.45	0.55	G	0.0866	0.1102	2.20	2.80
B	0.0650	0.0768	1.65	1.95	H	-	*0.0906	-	*2.30
C	0.0354	0.0591	0.90	1.50	I	-	0.0449	-	1.14
D	0.0177	0.0236	0.45	0.60	J	-	0.0346	-	0.88
E	0.2441	0.2677	6.20	6.80	K	0.2047	0.2165	5.20	5.50
F	0.2125	0.2283	5.40	5.80	L	0.0551	0.0630	1.40	1.60

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

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