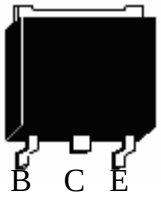
Low Vcesat NPN Epitaxial Planar Transistor

Description :

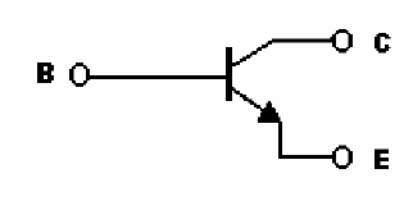
The device is manufactured in NPN planar technology by using a “Base Island” layout. The resulting transistor shows exceptional high gain performance coupled with very low saturation voltage.

TO-252(DPAK)



Features :

- Very low collector-to-emitter saturation voltage
- Fast switching speed
- High current gain characteristic
- Large current capability
- RoHS compliant package



Applications :

- CCFL drivers
- Voltage regulators
- Relay drivers
- High efficiency low voltage switching applications

BV_{CEO}	60V
I_C	5A
R_{CESAT}	100mΩ

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage (I_E=0)	V_{CBO}	150	V
Collector-Emitter Voltage (I_B=0)	V_{CEO}	60	V
Emitter-Base Voltage (I_C=0)	V_{EBO}	7	V
Collector Current (DC)	I_C	5	A
Collector Current (Pulse)	I_{CP}	10 (Note 1)	
Base Current	I_B	2	A
Power Dissipation @ T_A=25℃	P_D	1	W
Power Dissipation @ T_C=25℃	P_D	15	
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	125	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	8.33	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

Note : 1. Single Pulse , Pw≦380μs,Duty≦2%.

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	150	-	-	V	I_C=100μA, I_E=0
*BV_{CEO}	60	-	-	V	I_C=1mA, I_B=0
BV_{EBO}	7	-	-	V	I_C=100μA, I_C=0
I_{CBO}	-	-	0.1	μA	V_{CB}=80V, I_E=0
I_{EBO}	-	-	0.1	μA	V_{EB}=4V, I_C=0
*$V_{CE(sat)}$ 1	-	-	50	mV	I_C=100mA, I_B=5mA
*$V_{CE(sat)}$ 2	-	200	300	mV	I_C=2A, I_B=50mA
*$V_{CE(sat)}$ 3	-	240	400	mV	I_C=3A, I_B=150mA
*$V_{CE(sat)}$ 4	-	-	600	mV	I_C=5A, I_B=200mA
*$V_{BE(sat)}$	-	0.9	1.2	V	I_C=2A, I_B=100mA
*h_{FE} 1	200	-	400	-	V_{CE}=2V, I_C=100mA
*h_{FE} 2	85	-	-	-	V_{CE}=2V, I_C=5A
*h_{FE} 3	20	-	-	-	V_{CE}=2V, I_C=10A
f_T	-	150	-	MHz	V_{CE}=10V, I_C=50mA
Cob	-	50	-	pF	V_{CB}=10V, f=1MHz
t_{on}	-	50	-	ns	V_{CC}=30V, I_C=10I_{B1}=-10I_{B2}=1A, R_L=30Ω
t_{stg}	-	1.35	-	μs	
t_f	-	120	-	ns	

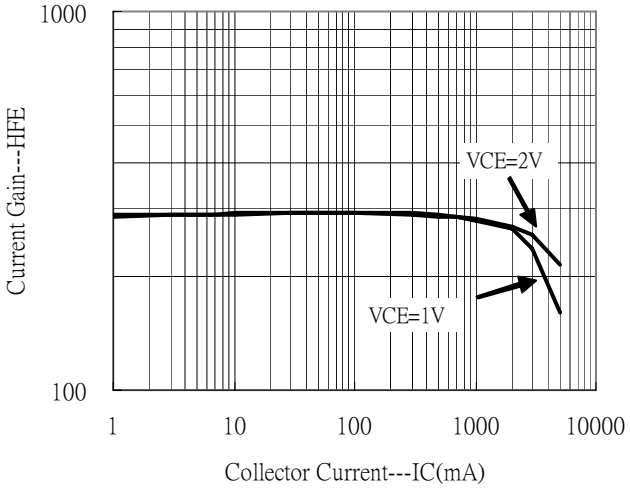
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

Ordering Information

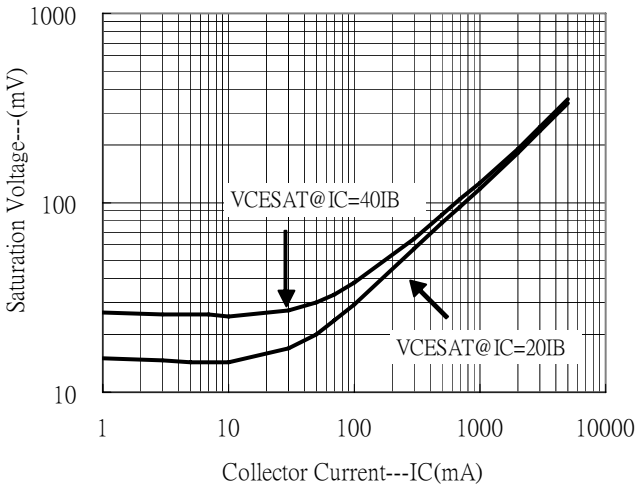
Device	Package	Shipping
KJD1805	TO-252 (Pb-free lead plating and halogen-free package)	2500 pcs/Tape & Reel

Typical Characteristics

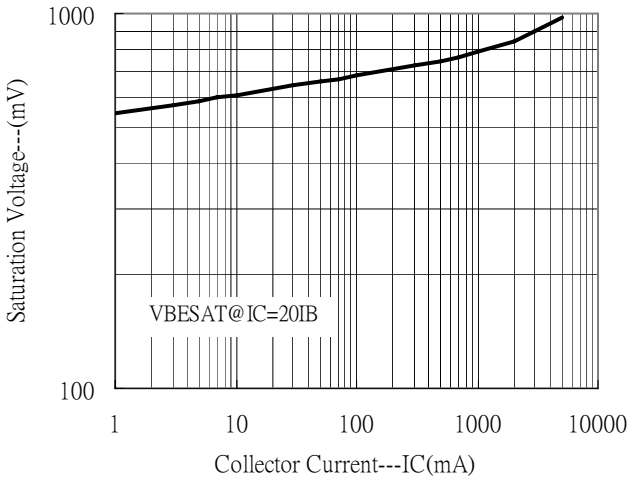
Current Gain vs Collector Current



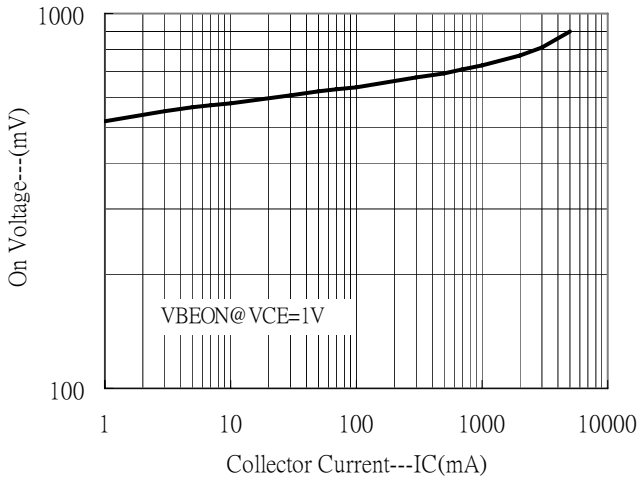
Saturation Voltage vs Collector Current



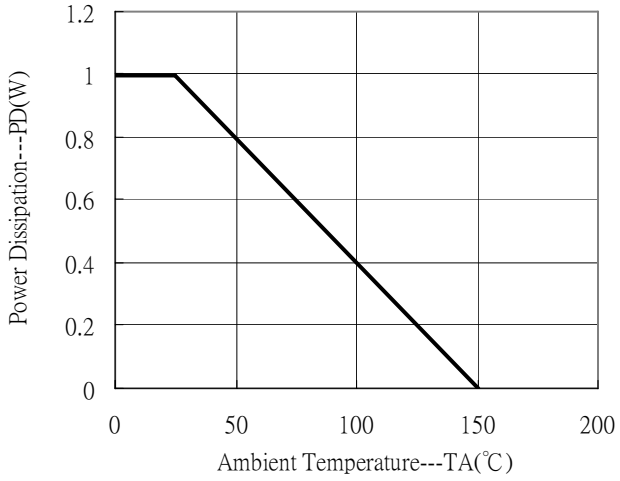
Saturation Voltage vs Collector Current



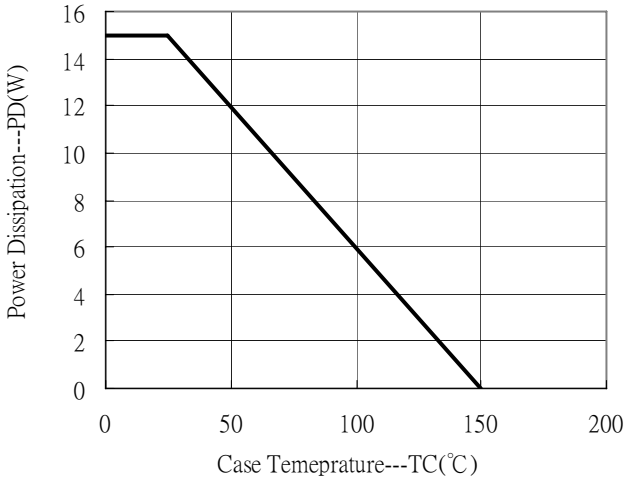
On Voltage vs Collector Current



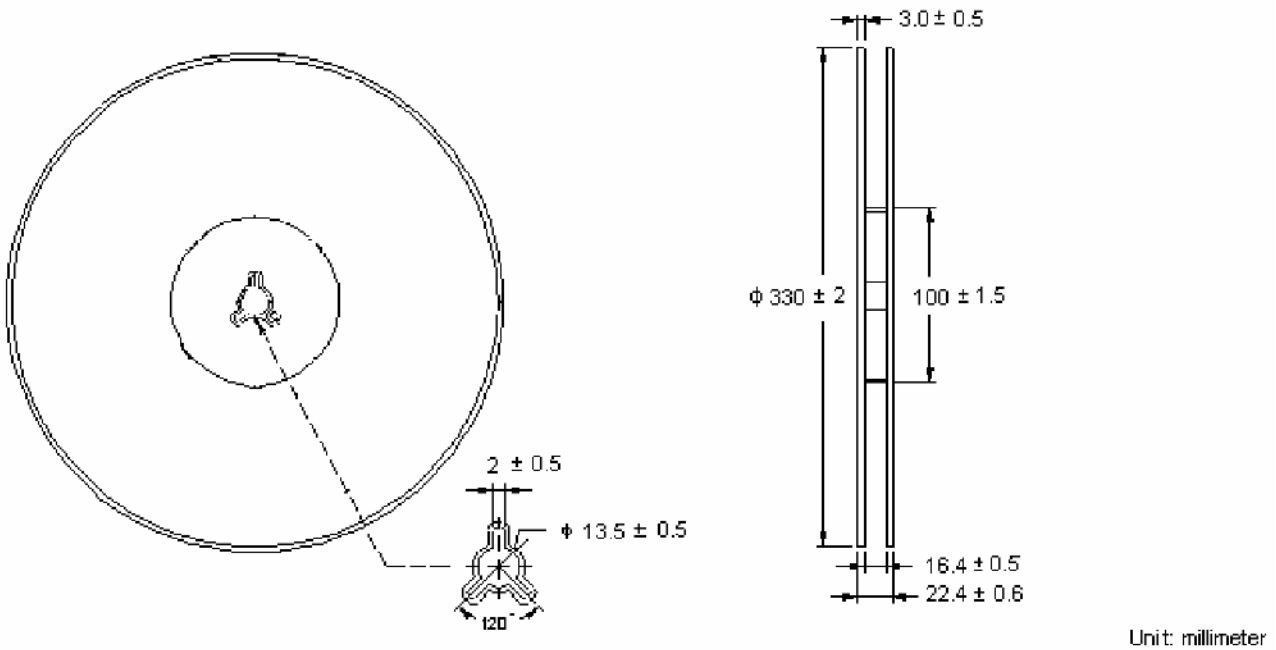
Power Derating Curve



Power Derating Curve

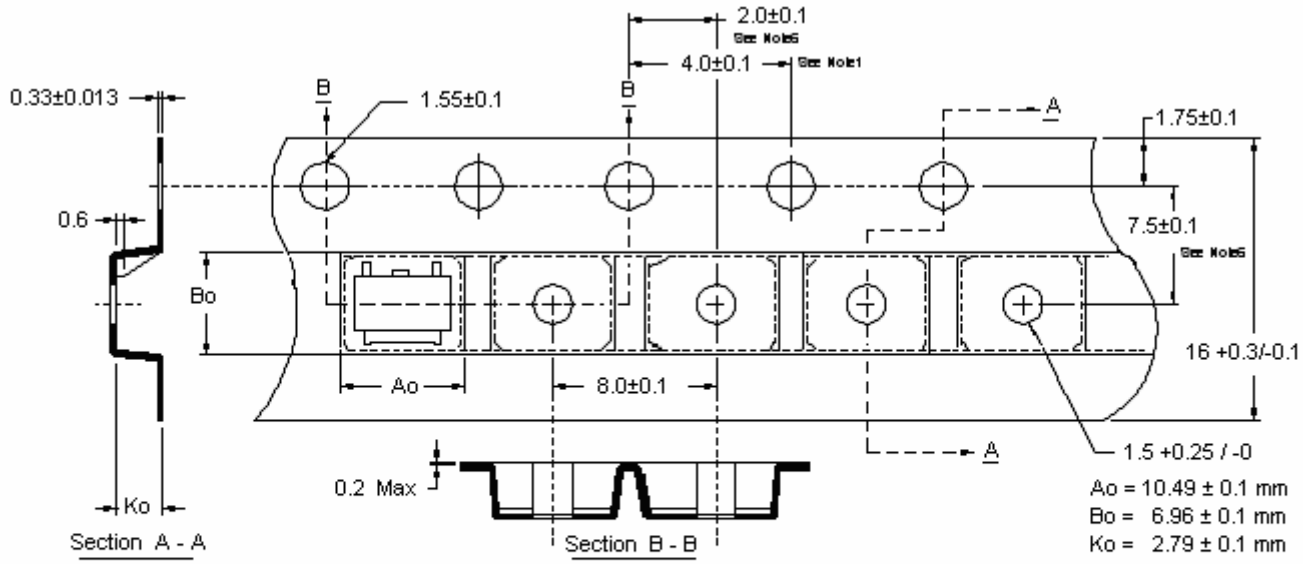


Reel Dimension



Unit: millimeter

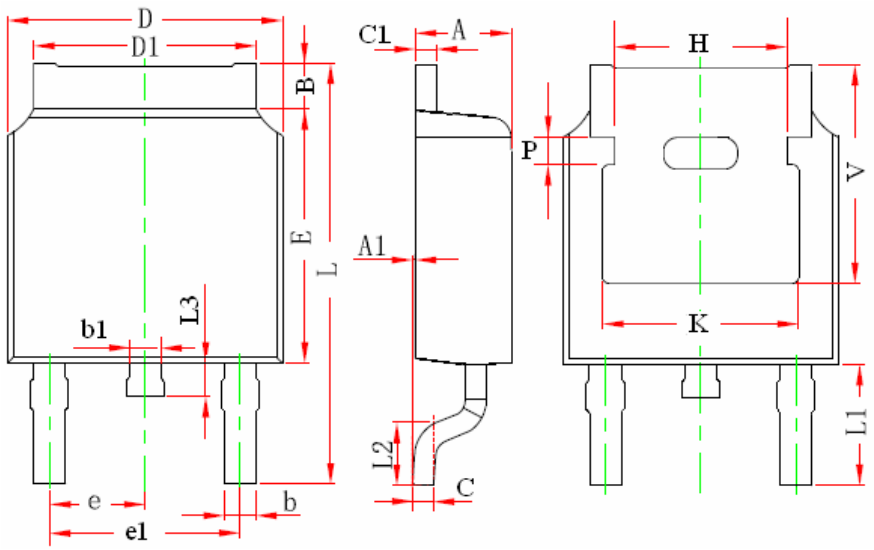
Carrier Tape Dimension



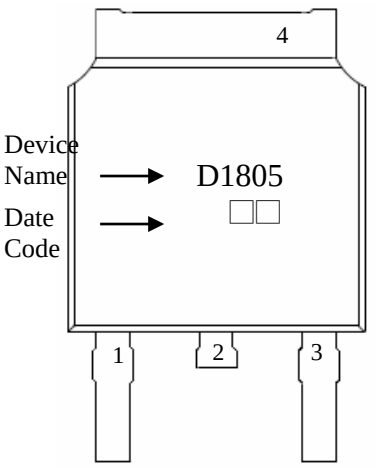
Notes:
1. 10 sprocket hole pitch cumulative tolerance ±0.2.
2. Camber not to exceed 1mm in 100mm.
3. Material: Conductive black polystyrene.
4. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket.
5. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
6. Pocket position relative to sprocket hole measured as true position of pocket, not pocket hole.

Unit : millimeter

TO-252 Dimension



Marking:



3-Lead TO-252 Plastic Surface Mount Package

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

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.087	0.094	2.200	2.400	e	0.086	0.094	2.186	2.386
A1	0.000	0.005	0.000	0.127	e1	0.172	0.188	4.372	4.772
B	0.039	0.048	0.990	1.210	H	0.163	REF	4.140	REF
b	0.026	0.034	0.660	0.860	K	0.190	REF	4.830	REF
b1	0.026	0.034	0.660	0.860	L	0.386	0.409	9.800	10.400
C	0.018	0.023	0.460	0.580	L1	0.114	REF	2.900	REF
C1	0.018	0.023	0.460	0.580	L2	0.055	0.067	1.400	1.700
D	0.256	0.264	6.500	6.700	L3	0.024	0.039	0.600	1.000
D1	0.201	0.215	5.100	5.460	P	0.026	REF	0.650	REF
E	0.236	0.244	6.000	6.200	V	0.211	REF	5.350	REF