TS13005CK

High Voltage NPN Transistor

TO-126

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

PRODUCT SUMMARY

BV_{CEO}	400V
BV_{CBO}	700V
I_C	3A
$V_{CE(SAT)}$	0.17V @ I_C=1A, I_B=0.25A

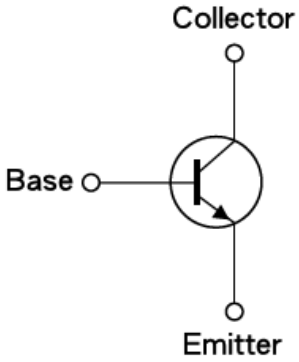
Features

- No Need to Interest an hfe Value Because of Low Variable Storage-time Spread Even Though Comer Spirit Product.
- Low Base Drive Requirement

Application

- Ballast Lighting
- Charger

Block Diagram



Ordering Information

Part No.	Package	Packing
TS13005CK C0G	TO-126	50pcs / Tube

Note: "G" denote for Halogen Free Product

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

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	700	V
Collector-Emitter Voltage @ V_{BE}=0V	V_{CES}	700	V
Collector-Emitter Voltage	V_{CEO}	400	V
Emitter-Base Voltage	V_{EBO}	9	V
Collector Current	I_C	3	A
Collector Peak Current (tp <5ms)	I_{CM}	6	A
Base Current	I_B	1.5	A
Base Peak Current (tp <5ms)	I_{BM}	3	A
Power Total Dissipation @ Tc=25ºC	P_{DTOT}	20	W
Maximum Operating Junction Temperature	T_J	+150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance - Junction to Case	$R\Theta_{JC}$	6.25	°C/W

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Electrical Specifications (Ta = 25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Collector-Base Voltage	I_C =1mA, I_B =0	BV_{CBO}	700	--	--	V
Collector-Emitter Breakdown Voltage	I_C =10mA, I_E =0	BV_{CEO}	400	--	--	V
Emitter-Base Breakdown Voltage	I_E =1mA, I_C =0	BV_{EBO}	9	--	--	V
Collector Cutoff Current	V_{CB} =700V, I_E =0	I_{CBO}	--	--	10	uA
Collector Cutoff Current	V_{CE} =400V, I_B =0	I_{CEO}	--	--	10	uA
Emitter Cutoff Current	V_{EB} =7V, I_C =0	I_{EBO}	--	--	10	uA
Collector-Emitter Saturation Voltage	I_C =0.4A, I_B =0.1A	$V_{CE(SAT)1}$	--	0.10	0.7	V
	I_C =1A, I_B =0.25A	$V_{CE(SAT)2}$	--	0.17	1	
	I_C =2A, I_B =0.5A	$V_{CE(SAT)3}$	--	0.55	--	
Base-Emitter Saturation Voltage	I_C =1A, I_B =0.25A	$V_{BE(SAT)1}$	--	--	1.1	V
	I_C =2A, I_B =0.5A	$V_{BE(SAT)2}$	--	--	1.2	
DC Current Gain	V_{CE} =5V, I_C =10mA	Hfe	10	--	--	
	V_{CE} =5V, I_C =1A		15	--	30	
	V_{CE} =5V, I_C =2A		5	--	--	
Forward Voltage Drop	I_F =2A	Vf	--	--	2	V
Turn On Time	V_{CC} =250V, I_C =1A, I_{B1}=I_{B2}=0.2A, t_p=25uS Duty Cycle<1%	t_{ON}	--	0.2	0.6	uS
Storage Time		t_{STG}	--	2.7	4.5	uS
Fall Time		t_f	--	0.16	0.3	uS

Notes: Pulsed duration =380uS, duty cycle ≤2%

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

Figure 1. Safety Operation Area

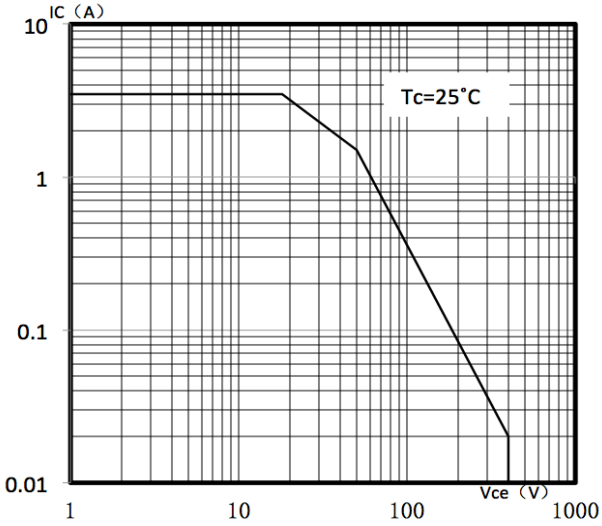


Figure 2. DC Current Gain

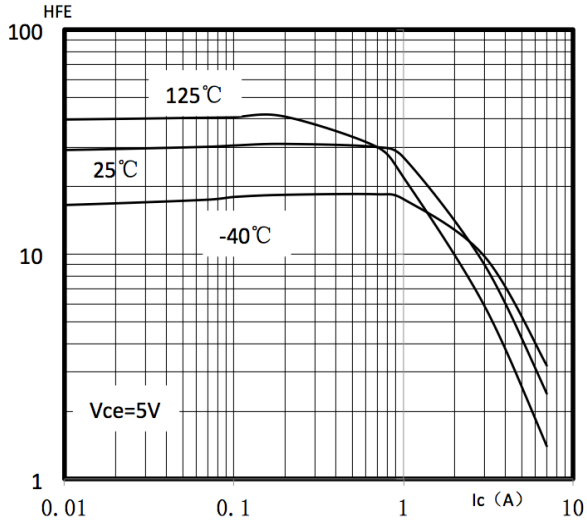


Figure 3. Vce(sat) v.s IC

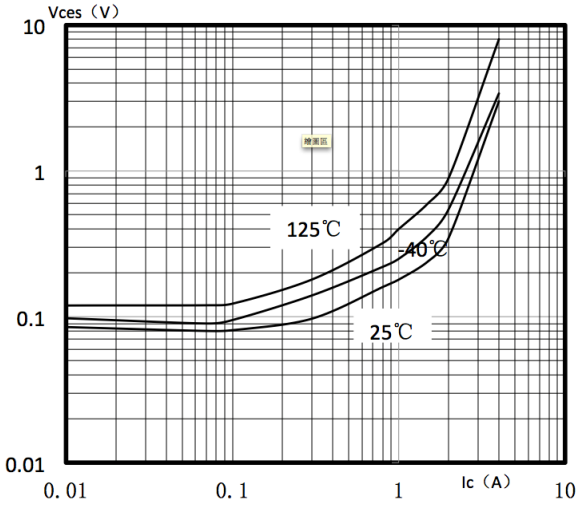


Figure 4. Vbe(sat) v.s IC

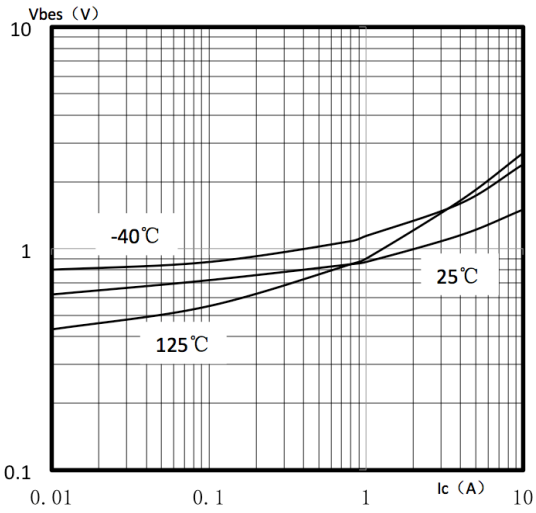
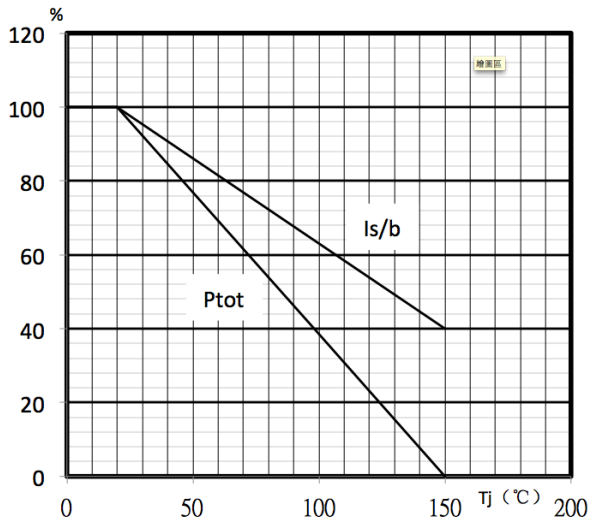


Figure 5. Power Derating



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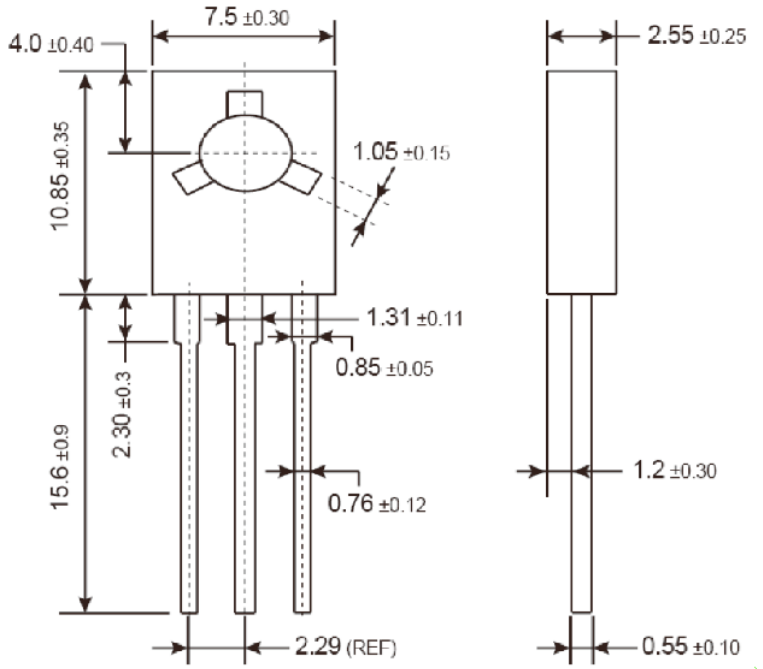
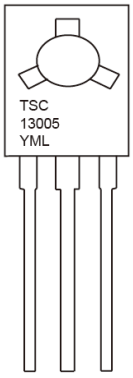
TO-126 Mechanical Drawing



Unit: Millimeters

Marking Diagram



Y = Year Code
M = Month Code for Halogen Free Product
(**O**=Jan, **P**=Feb, **Q**=Mar, **R**=Apl, **S**=May, **T**=Jun, **U**=Jul, **V**=Aug, **W**=Sep, **X**=Oct, **Y**=Nov, **Z**=Dec)
L = Lot Code

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