High Voltage NPN Transistor

FEATURES

- Low spread of dynamic parameters
- High switching speed
- Low base drive requirement
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC.
- Halogen-free according to IEC 61249-2-21

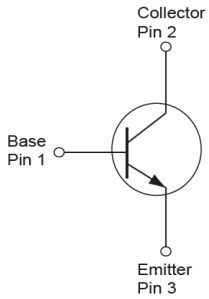
KEY PERFORMANCE PARAMETERS			
PARAMETER		**VALUE**	**UNIT**
BV_{CEO}		400	V
BV_{CBO}		700	V
I_C		3	A
$V_{CE(SAT)}$	I_C=1A, I_B=0.2A	0.17	V

APPLICATION

- Ballast Lighting
- Charger

Pb-Free RoHS COMPLIANT HALOGEN FREE

TO-126



ABSOLUTE MAXIMUM RATINGS (T_A = 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 @ T_C=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**
Junction to Case Thermal Resistance	$R_{\Theta JC}$	6.25	°C/W

ELECTRICAL SPECIFICATIONS (T_A = 25°C unless otherwise noted)						
PARAMETER	**CONDITIONS**	**SYMBOL**	**MIN**	**TYP**	**MAX**	**UNIT**
Static (Note 1)						
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	A
Collector Cutoff Current	V_{CE} =400V, I_B =0	I_{CEO}	--	--	10	μA
Emitter Cutoff Current	V_{EB} =7V, I_C =0	I_{EBO}	--	--	10	μA
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 =0.2A	$V_{CE(SAT)2}$	--	0.17	1.0	
	I_C =2.5A, I_B =0.5A	$V_{CE(SAT)3}$	--	0.55	1.5	
Base-Emitter Saturation Voltage	I_C =1A, I_B =0.2A	$V_{BE(SAT)1}$	--	--	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	h_{FE}	10	--	--	
	V_{CE} =5V, I_C =1A		15	--	30	
	V_{CE} =5V, I_C =2A		5	--	--	
	V_{CE} =2V, I_C =0.425A		24	--	--	
Forward Voltage Drop	I_F =2A	V_F	--	--	2.0	V
Resistive Load Switching Time (Note 2)						
Turn On Time	V_{CC} =250V, I_C =1A, I_{B1}=I_{B2}=0.2A, t_p=25μs Duty Cycle<1%	t_{ON}	--	0.2	0.6	μs
Storage Time		t_{STG}	--	2.7	4.5	μs
Fall Time		t_f	--	0.16	0.3	μs

Notes:

1. Pulse test: ≤ 380μs, duty cycle ≤ 2%
2. For DESIGN AID ONLY, not subject to production testing.

ORDERING INFORMATION

PART NO.	PACKAGE	PACKING
TS13005CK C0G	TO-126	50pcs / Tube

ELECTRICAL CHARACTERICS CURVES (T_A=25°C, unless otherwise noted)

Figure 1. Safe Operation Area

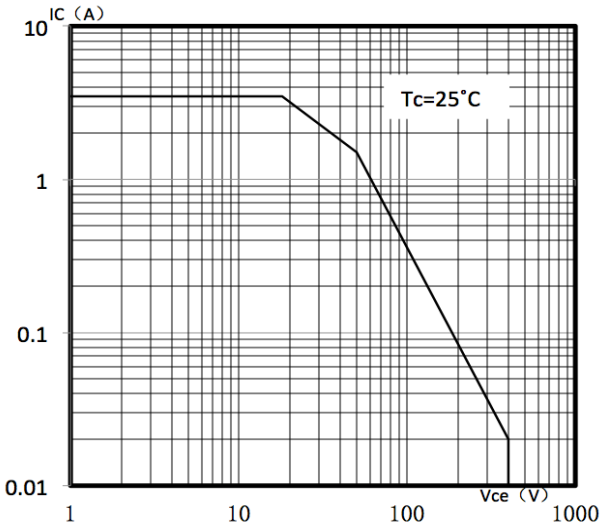


Figure 2. DC Current Gain

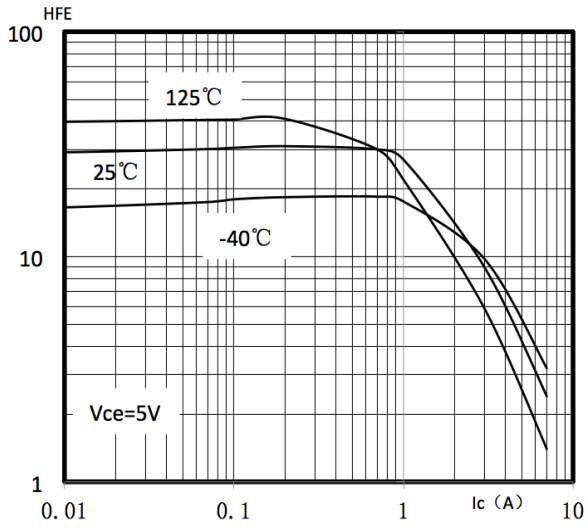


Figure 3. Vce(sat) vs. IC

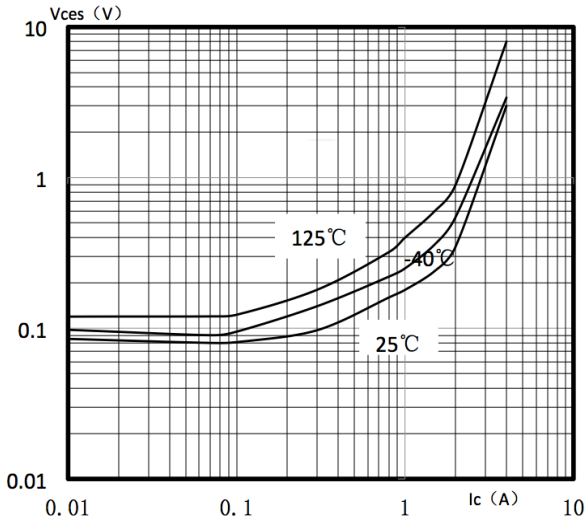


Figure 4. Vbe(sat) vs. IC

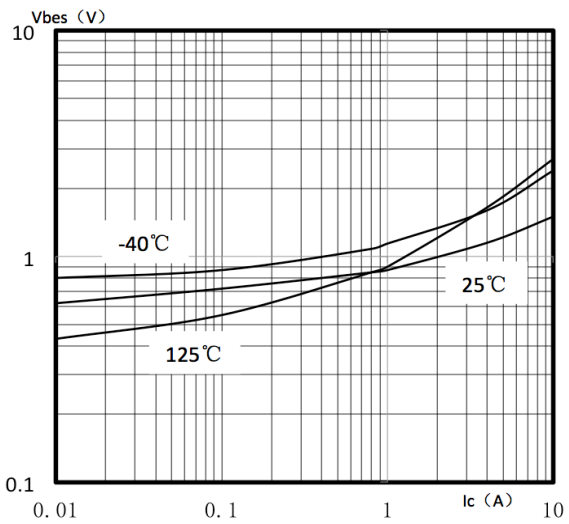
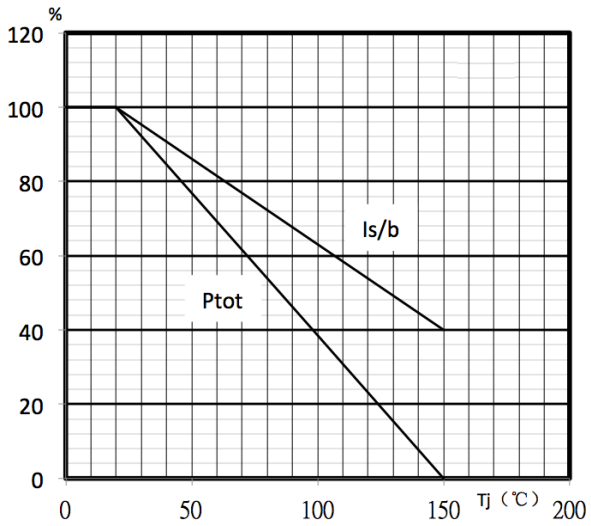


Figure 5. Power Derating



PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

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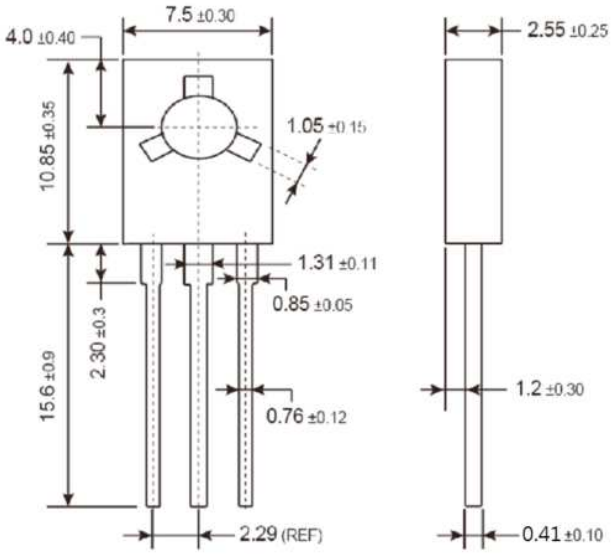
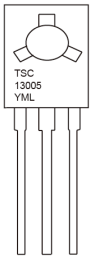


MARKING DIAGRAM



Y = Year Code

M = Month Code for Halogen Free Product

O	=Jan	**P**	=Feb	**Q**	=Mar	**R**	=Apr
S	=May	**T**	=Jun	**U**	=Jul	**V**	=Aug
W	=Sep	**X**	=Oct	**Y**	=Nov	**Z**	=Dec

L = Lot Code

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