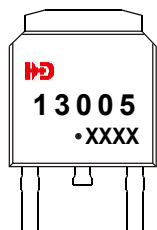


TO-252-2L Plastic-Encapsulate Transistors

FEATURES

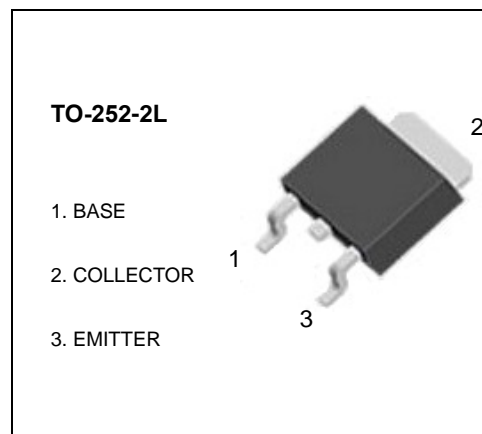
- High Voltage Capability
- High Switching Speed
- Suitable for Electronic Ballast and Switching Mode Power Supply
- 100% Avalanche Tested

MARKING



13005= Device code
 Solid dot = Green molding compound device
 if none, the normal device
 XXXX = Code

TRANSISTOR (NPN)



Absolute Maximum Ratings* (T_a=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V _{CBO}	Collector-Base Voltage	720	V
V _{CEO}	Collector-Emitter Voltage	450	V
V _{EBO}	Emitter-Base Voltage	12	V
I _C	Collector Current (DC)	4	A
I _{CP}	Collector Current (Pulse)	8	A
I _B	Base Current	2	A
P _C	Collector Dissipation (T _C = 25°C)	70	W
T _J	Junction Temperature	150	°C
T _{STG}	Storage Temperature	-65 ~ 150	°C

Electrical Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV _{CBO}	Collector-Base Breakdown Voltage	I _C = 50μA, I _E = 0	850			V
BV _{CEO}	Collector-Emitter Breakdown Voltage	I _C = 5mA, I _B = 0	450			V
BV _{EBO}	Emitter-Base Breakdown Voltage	I _E = 1mA, I _C = 0	12			V
I _{CES}	Collector Cut-off Current	V _{CE} = 720V, V _{EB} = 0			1	mA
I _{CEO}	Collector Cut-off Current	V _{CE} = 400V, I _B = 0			5	mA
I _{EBO}	Emitter Cut-off Current	V _{EB} = 9V, I _C = 0			5	mA
h _{FE}	DC Current Gain	V _{CE} = 5V, I _C = 5mA V _{CE} = 5V, I _C = 2A	19 15		23 18	
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 4.0A, I _B = 1.0A I _C = 5.0A, I _B = 1.0A			0.7 1.2	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C = 5.0A, I _B = 1.0A			1.2	V
V _f	Internal Diode Forward Voltage Drop	I _F = 2A			2.5	V

* Pulse Test: PW ≤ 300μs, Duty Cycle ≤ 2%

Thermal Characteristics

Symbol	Parameter	Max.	Units
R _{θJC}	Thermal Resistance, Junction to Case	1.78	°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	62.5	°C/W

Typical Characteristics

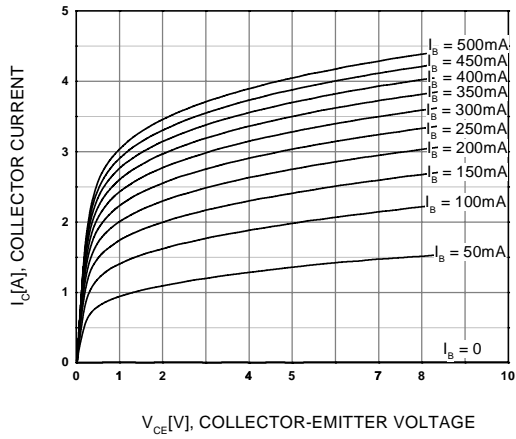


Figure 1. Static Characteristic

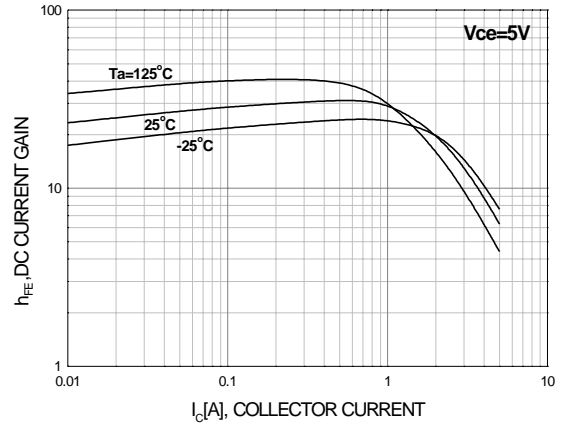


Figure 2. DC Current Gain

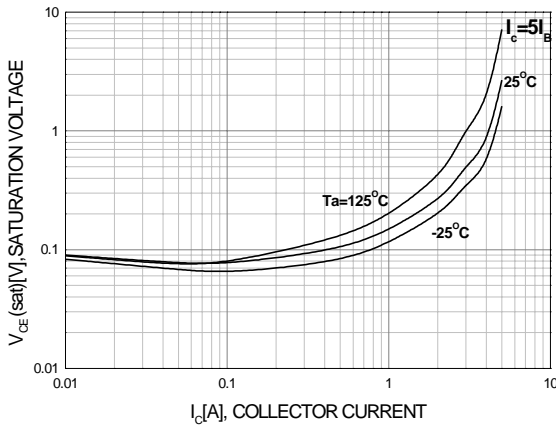


Figure 3. Collector-Emitter Saturation Voltage

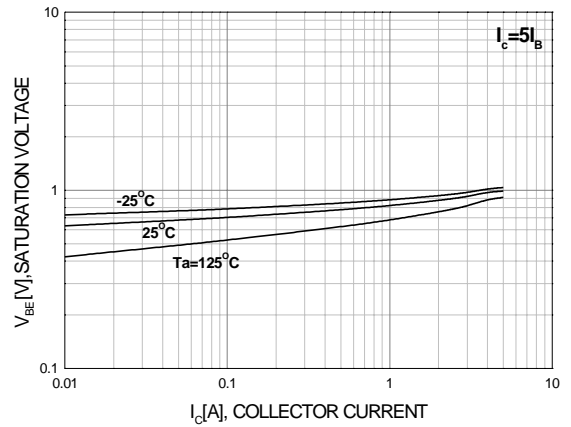


Figure 4. Base-Emitter Saturation Voltage

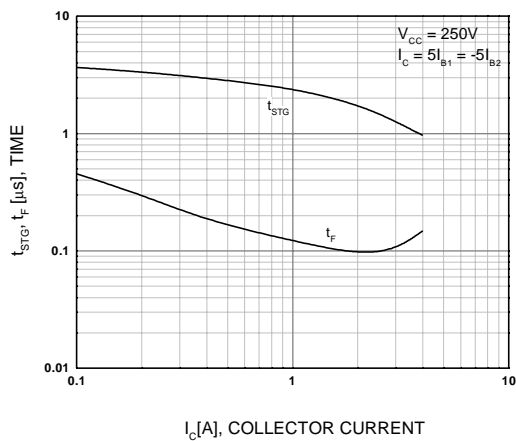


Figure 5. Resistive Load Switching Time

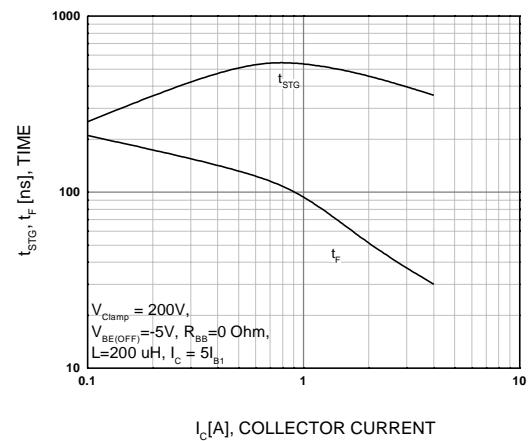
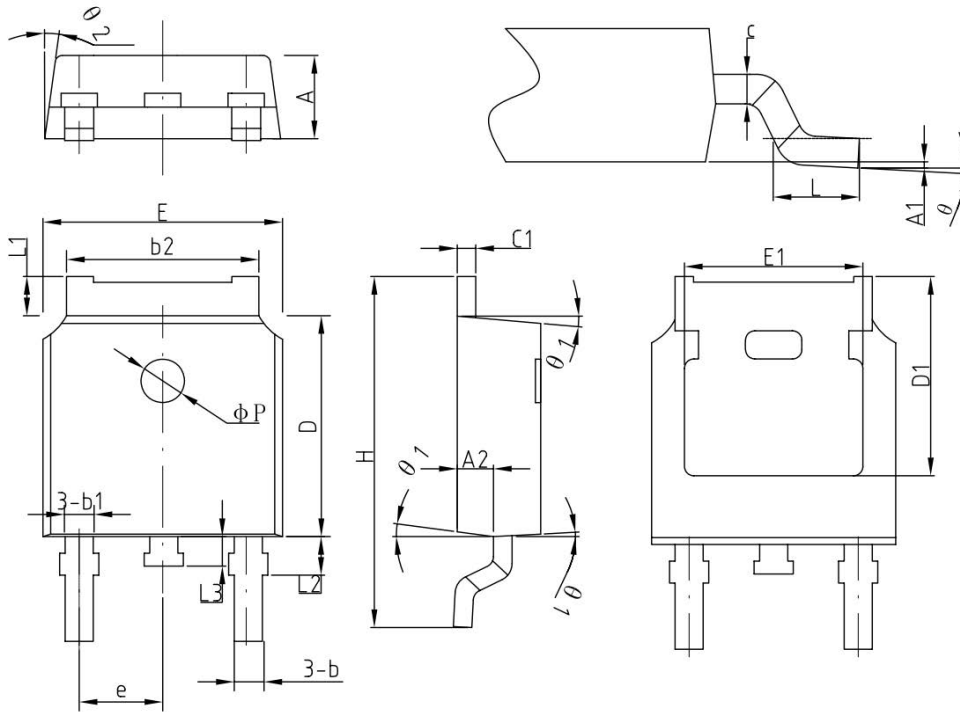


Figure 6. Inductive Load Switching Time

TO- 252 -2L Package Outline Dimensions

Unit: mm



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	2.2	2.30	2.38
A1	0	—	0.10
A2	0.90	1.01	1.10
b	0.71	0.76	0.86
b1		0.76	
b2	5.13	5.33	5.46
c	0.47	0.50	0.60
c1	0.47	0.50	0.60
D	6.0	6.10	6.20
D1	—	5.30	—
E	6.50	6.60	6.70
E1	—	4.80	—
e	2.286BSC		
H	9.70	10.10	10.40
L	1.40	1.50	1.70
L1	0.90	—	1.25
L2		1.05	
L3		0.8	
φP		1.2	
θ	0°	—	8°
θ 1	5°	7°	9°
θ 2	5°	7°	9°