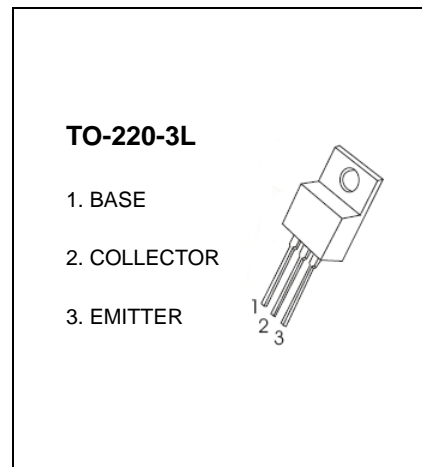


TO-220-3L Plastic-Encapsulate Transistors

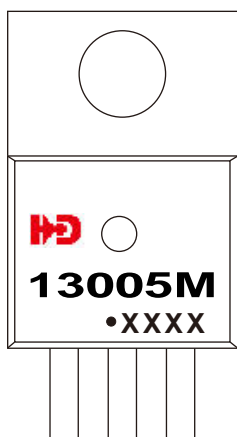
TRANSISTOR (NPN)

FEATURES

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

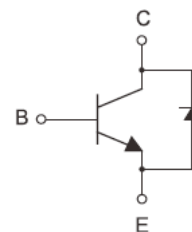


MARKING



XXXX=Code

Equivalent Circuit



Absolute Maximum Ratings* T = 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_a=25°C unless otherwise specified)

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 = 1mA, I _E = 0	700			V
BV _{CEO}	Collector-Emitter Breakdown Voltage	I _C = 5mA, I _B = 0	400			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 Performance Characteristics

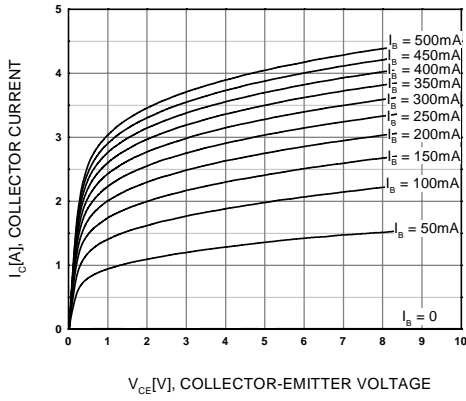


Figure 1. Static Characteristic

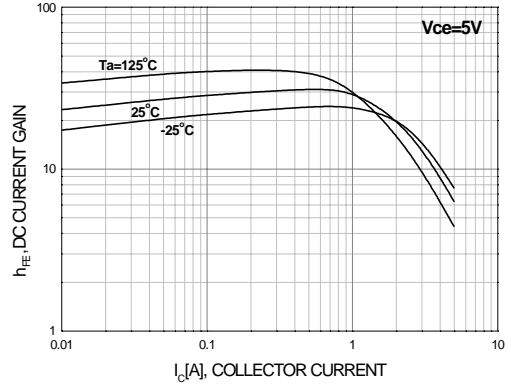


Figure 2. DC Current Gain

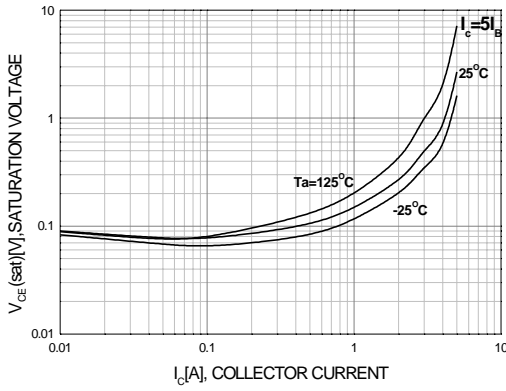


Figure 3. Collector-Emitter Saturation Voltage

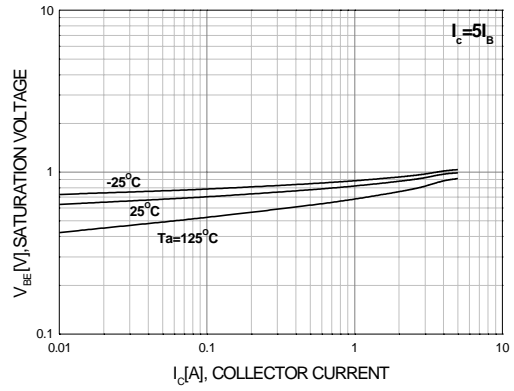


Figure 4. Base-Emitter Saturation Voltage

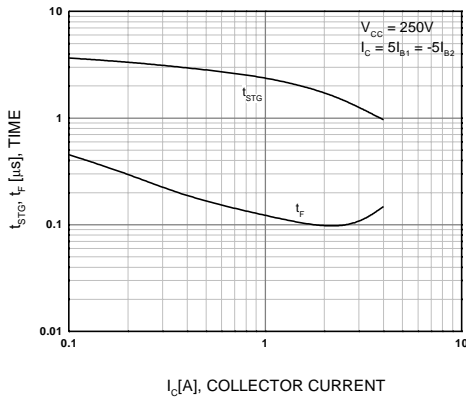


Figure 5. Resistive Load Switching Time

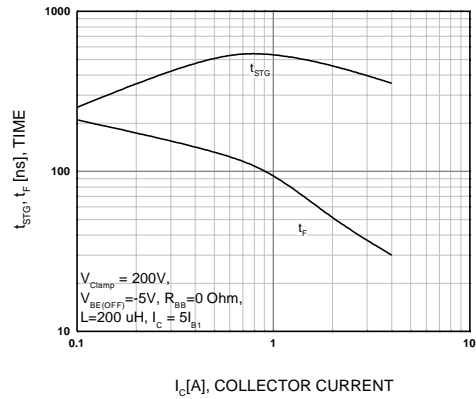


Figure 6. Inductive Load Switching Time

Typical Performance Characteristics

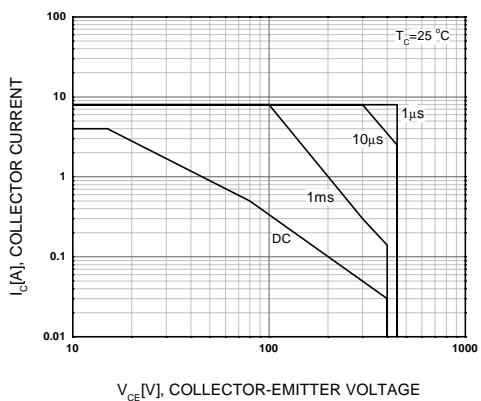


Figure 7. Forward Bias Safe Operating Area

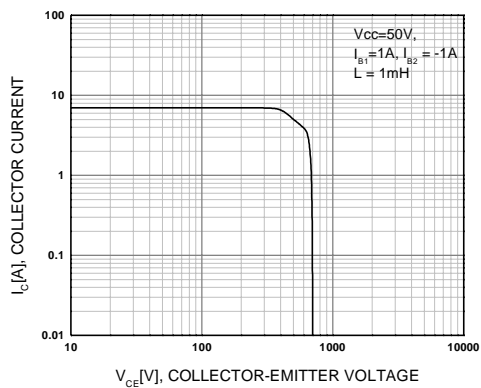


Figure 8. Reverse Bias Safe Operating Area

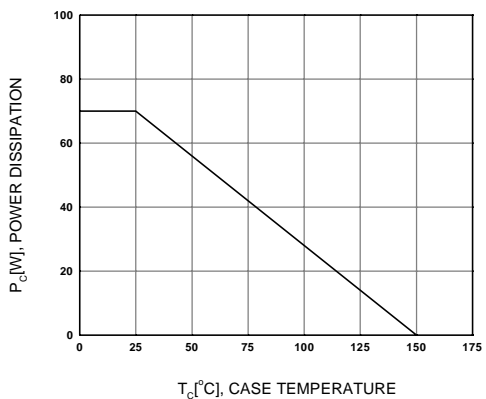
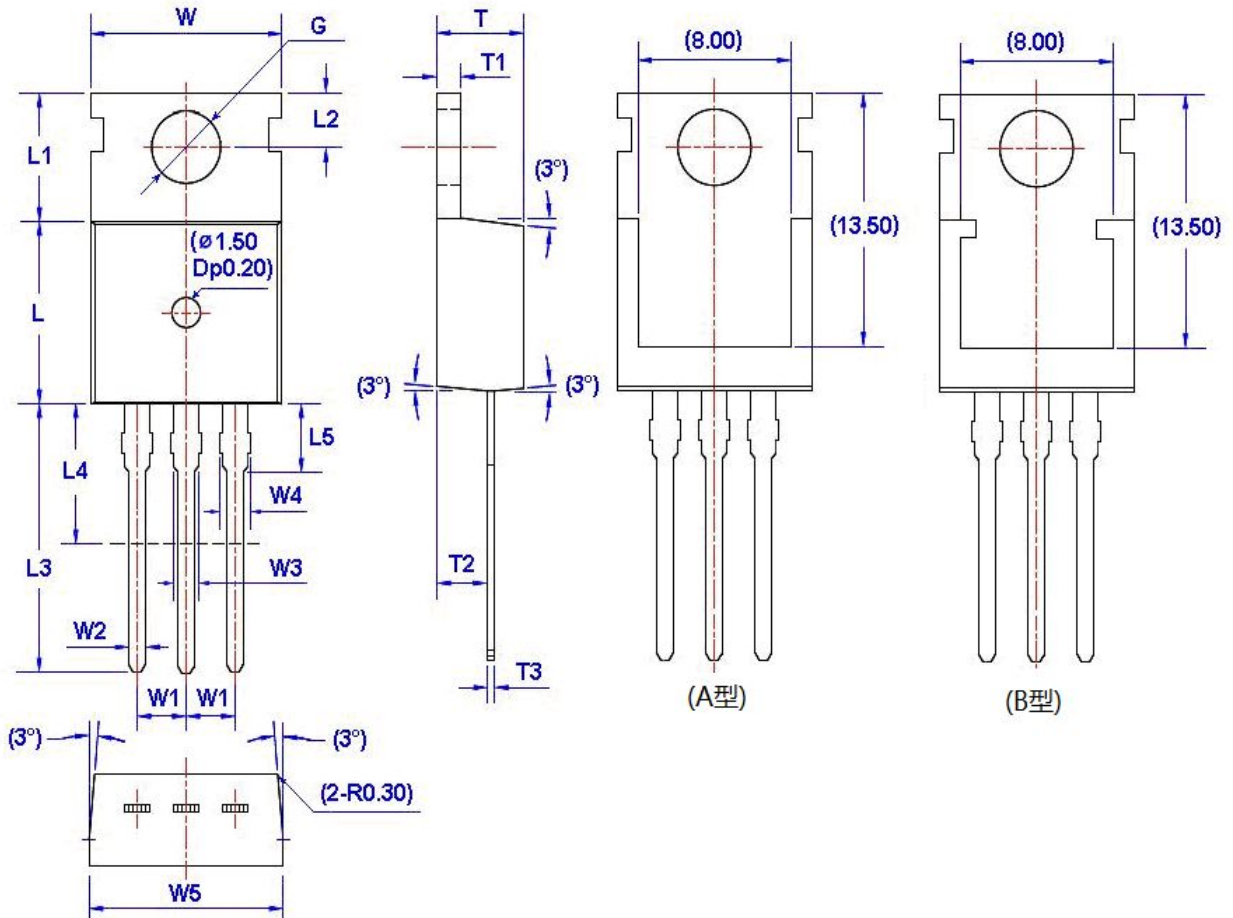


Figure 9. Power Derating

TO-220-3L Package Outline Dimensions



Symbol	Size		Symbol	Size		Symbol	Size		Symbol	Size	
	Min	Max		Min	Max		Min	Max		Min	Max
W	9.66	10.28	W5	9.80	10.20	L4**	6.20	6.60	T3	0.45	0.60
W1	2.54 (TYP)		L	9.00	9.40	L5	2.79	3.30	G(Φ)	3.50	3.70
W2	0.70	0.95	L1	6.40	6.80	T	4.30	4.70			
W3	1.17	1.37	L2	2.70	2.90	T1	1.15	1.40			
W4*	1.32	1.72	L3	12.70	14.27	T2	2.20	2.60			