

13009

**HIGH VOLTAGE FAST-SWITCHING NPN
POWER TRANSISTOR**

DRAWING



1. Base 2. Collector 3. Emitter

Features

- High breakdown voltage
- High current capability
- High switching speed
- High reliability
- RoHS product
- Case:TO-220AB

Applications

- Energy-saving light
- Electronic ballasts
- High frequency switching power supply
- High frequency power transform
- Commonly power amplifier

Absolute Maximum Ratings ($T_c=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage($V_{BE}=0$)	700	V
V_{CEO}	Collector-Emitter Voltage($I_B=0$)	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current(DC)	12	A
I_{CP}	Collector Current(Pulse)	24	A
I_B	Base Current	6	A
I_{BP}	Base Current(Pulse)	12	A
P_C	Collector Dissipation	100	W
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	-55~150	$^{\circ}\text{C}$

Pulse Test: Pulse Width = 5.0 ms, Duty Cycle < 10%.

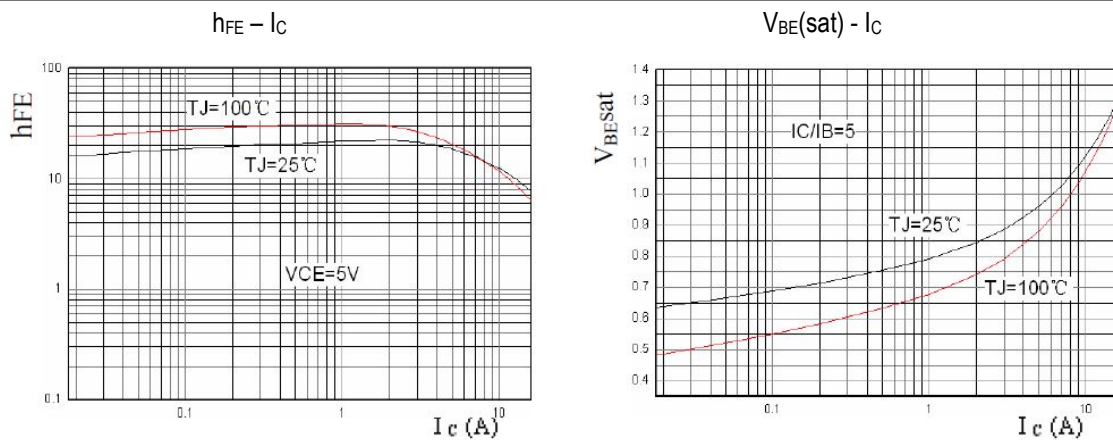
Electrical Characteristics (Tc=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV _{CEO}	Collector-Emitter Breakdown Voltage	I _C =10mA, I _B =0	400			V
BV _{CBO}	Collector-Base Breakdown Voltage	I _C =1mA, I _E =0	700			
BV _{EBO}	Emitter-Base Breakdown Voltage	I _E =1mA, I _C =0	9			
I _{CBO}	Collector-Base Cut-off Current	V _{CB} =700V, I _E =0			100	uA
I _{CEO}	Collector-Emitter Cut-off Current	V _{CE} =400V, I _B =0			50	
I _{EBO}	Emitter-Base Cut-off Current	V _{EB} =9V, I _C =0			10	
h _{FE1}	DC Current Gain	V _{CE} =5V, I _C =5A	8		40	
h _{FE2}		V _{CE} =5V, I _C =8A	5			
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C =5A, I _B =1A			1.2	V
		I _C =8A, I _B =1.6A			1.8	
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C =8A, I _B =1.6A			1.8	V
f _T	Current Gain Bandwidth Product	V _{CE} =10V, I _C =0.5A	4			MHz
T _S	Storage Time	V _{CC} =24V, I _C =5A			3.0	us
T _F	Fall Time	I _{B1} =-I _{B2} =1A			0.7	

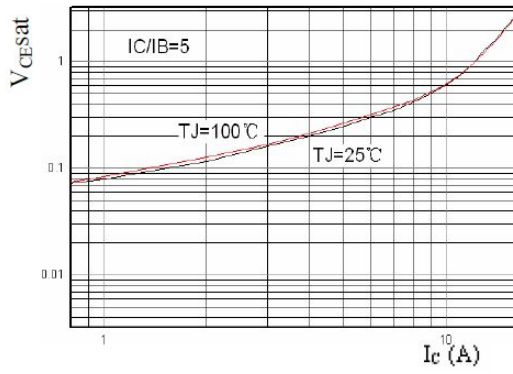
Thermal Performance Characteristics

SYMBOL	PARAMETER	Value	Unit
R _{th(J-C)}	Thermal Resistance, Junction-to-Case	1.25	°C/W

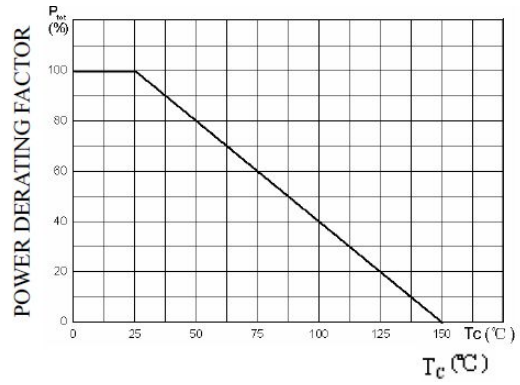
Typical Characteristics



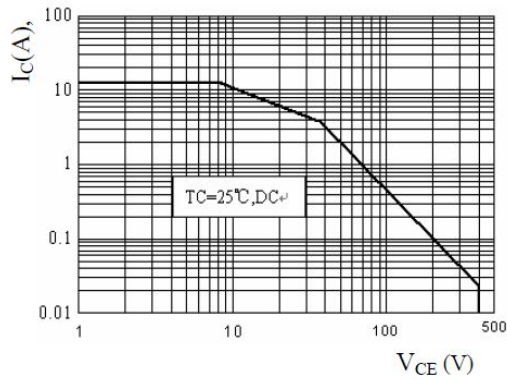
$V_{CE(sat)} - I_C$



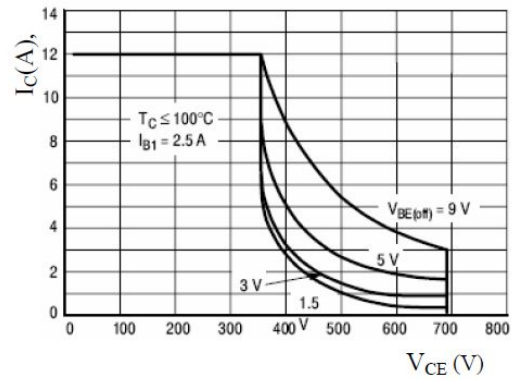
$P_C - T_C$



SOA



RSOA



Mechanical Dimensions

