Shantou Huashan Electronic Devices Co.,Ltd.

NPN SILICON TRANSISTOR

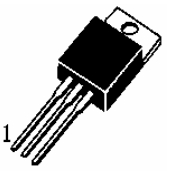
HEP31 Series

(HEP31/HEP31A/HEP31B/HEP31C)

APPLICATIONS

Medium Power Linear switching Applications.

TO-220AB



1—Base, B
2—Collector, C
3—Emitter, E

ABSOLUTE MAXIMUM RATINGS (T_a=25℃)

T_{stg}——Storage Temperature····· -55~150℃
T_j——Junction Temperature·····150℃
P_C——Collector Dissipation (Tc=25℃)·····40W
P_C——Collector Dissipation (Ta=25℃) ·····2W
V_{CBO}——Collector-Base Voltage、V_{CEO}——Collector-Emitter Voltage
HEP31·····40V
HEP31A·····60V
HEP31B·····80V
HEP31C·····100V
V_{EBO}——Emitter-Base Voltage·····5V
I_C——Collector Current (DC) ·····3A
I_C——Collector Current (Pulse) ·····5A
Ib——Base Current·····1A

ELECTRICAL CHARACTERISTICS (T_a=25℃)

Symbol	Characteristics		Min	Typ	Max	Unit	Test Conditions
BV_{CEO}	Collector-Emitter Breakdown Voltage	HEP31	40			V	I_C=30mA, I_B=0
		HEP31A	60			V	
		HEP31B	80			V	
		HEP31C	100			V	
I_{CEO}	Collector Cut-off Current	HEP31/ HEP31A			0.3	mA	V_{CB}=30V, I_B=0
		HEP31B/ HEP31C			0.3	mA	V_{CB}=60V, I_B=0
I_{CES}	Collector Cut-off Current	HEP31			200	μA	V_{CE}=40V, V_{EB}=0
		HEP31A			200	μA	V_{CE}=60V, V_{EB}=0
		HEP31B			200	μA	V_{CE}=80V, V_{EB}=0
		HEP31C			200	μA	V_{CE}=100V, V_{EB}=0
H_{FE} (1)	*DC Current Gain		25				V_{CE}=4V, I_C=1A
H_{FE} (2)			10		50		V_{CE}=4V, I_C=3A
$V_{CE(sat)}$	*Collector- Emitter Saturation Voltage				1.2	V	I_C=3A, I_B=375mA
$V_{BE(ON)}$	*Base-Emitter On Voltage				1.8	V	V_{CE}=4V, I_C=3A
I_{EBO}	Emitter Cut-off Current				1	mA	V_{EB}=5V, I_C=0
f_T	Current Gain-Bandwidth Product		3.0			MHz	V_{CE}=10V, I_C=500mA, f=1MHz

*Pulse Test: PW≤300μs, Duty cycle≤2%

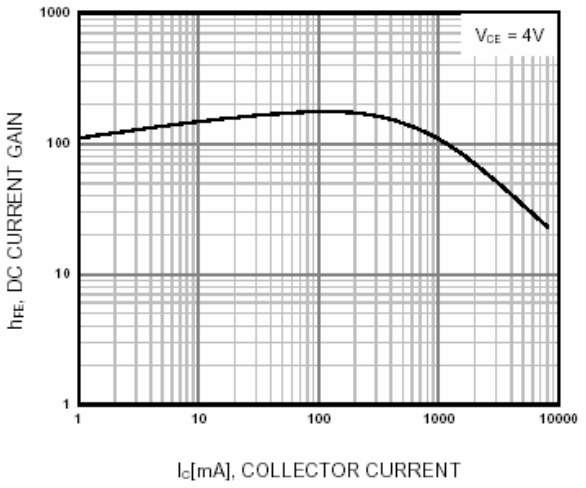


Figure 1. DC current Gain

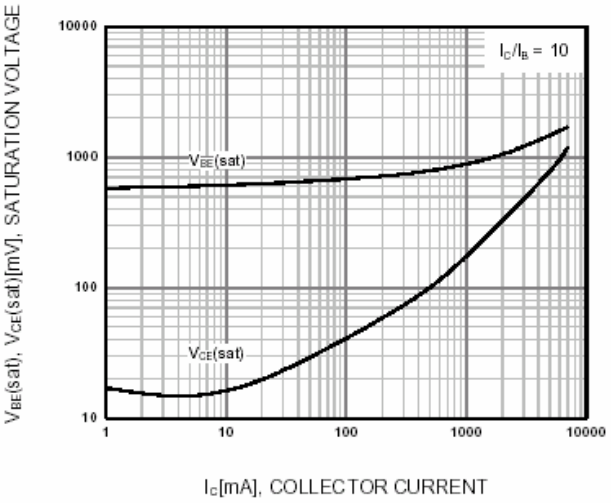


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

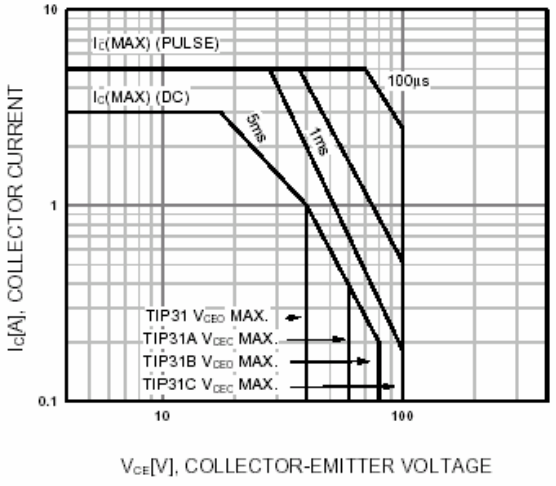


Figure 3. Safe Operating Area

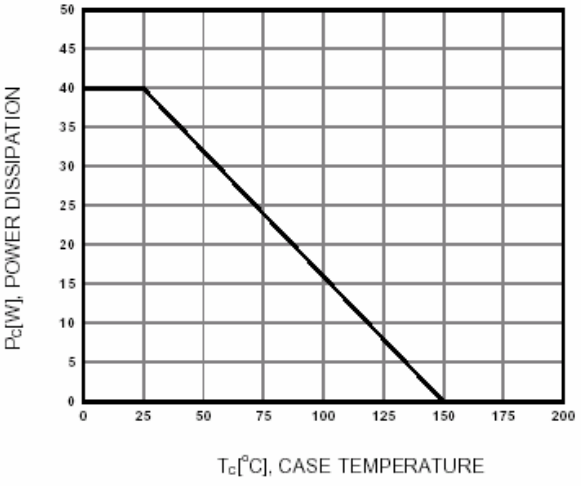


Figure 4. Power Derating