



Shantou Huashan Electronic Devices Co., Ltd.

NPN SILICON TRANSISTOR

HE13003

HIGH VOLTAGE SWITCH MODE APPLICATIONS

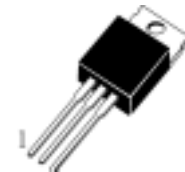
High Speed Switching

Suitable for Switching Regulator and Motor Control

ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

T_{stg}	— Storage Temperature	-65~150°C
T_j	— Junction Temperature	150°C
P_C	— Collector Dissipation ($T_c=25^\circ\text{C}$)	50W
V_{CBO}	— Collector-Base Voltage	700V
V_{CEO}	— Collector-Emitter Voltage	400V
V_{EBO}	— Emitter-Base Voltage	9V
I_C	— Collector Current (DC)	1.5A
I_R	— Base Current	0.75A

TO-220



1—Base, B
2—Collector, C
3—Emitter, E

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

Symbol	Characteristics	Min	Typ	Max	Unit	Test Conditions
BV_{CEO}	Collector-Emitter Breakdown Voltage	400			V	$I_C=5\text{mA}$, $I_B=0$
I_{EBO}	Emitter-Base Cut-off Current			10	μA	$V_{\text{EB}}=9\text{V}$, $I_C=0$
$H_{\text{FE}} (1)$	DC Current Gain	10		40		$V_{\text{CE}}=5\text{V}$, $I_C=0.5\text{A}$
$H_{\text{FE}} (2)$		5				$V_{\text{CE}}=2\text{V}$, $I_C=1\text{A}$
$V_{\text{CE(sat)1}}$	Collector- Emitter Saturation Voltage			0.5	V	$I_C=0.5\text{A}$, $I_B=0.1\text{A}$
$V_{\text{CE(sat)2}}$				1	V	$I_C=1\text{A}$, $I_B=0.25\text{A}$
$V_{\text{CE(sat)3}}$				3	V	$I_C=1.5\text{A}$, $I_B=0.5\text{A}$
$V_{\text{BE(sat)1}}$	Base-Emitter Saturation Voltage			1	V	$I_C=0.5\text{A}$, $I_B=100\text{mA}$
$V_{\text{BE(sat)2}}$				1.2	V	$I_C=1\text{A}$, $I_B=0.25\text{A}$
f_T	Current Gain-Bandwidth Product	5			MHz	$V_{\text{CE}}=10\text{V}$, $I_C=0.1\text{A}$, $f=1\text{MHz}$
t_{ON}	Turn On Time			1.1	μs	$V_{\text{CC}}=125\text{V}$, $I_C=1\text{A}$, $I_{B1}=0.2\text{A}$, $I_{B2}=-0.2\text{A}$ $R_L=125\Omega$
t_{STG}	Storage Time			4.0	μs	
t_F	Fall Time			0.7	μs	

h_{FE} Classification

H1

H2

H3

H4

H5

10-16

14-21

19-26

24-31

29-40

