



Shantou Huashan Electronic Devices Co., Ltd.

NPN SILICON TRANSISTOR

**KSH13009**

**HIGH VOLTAGE SWITCH MODE APPLICATIONS**

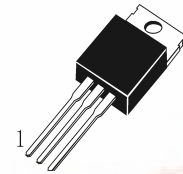
High Speed Switching

Suitable for Switching Regulator and Motor Control

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

$T_{stg}$	—Storage Temperature.....	-55~150
$T_j$	—Junction Temperature.....	150
$P_C$	—Collector Dissipation( $T_c=25^\circ\text{C}$ ).....	100W
$V_{CBO}$	—Collector-Base Voltage.....	700V
$V_{CEO}$	—Collector-Emitter Voltage.....	400V
$V_{EBO}$	—Emitter-Base Voltage.....	9V
$I_C$	—Collector Current ( DC ) .....	12A
$I_B$	—Base Current.....	6A

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	$I_C=10\text{mA}, I_B=0$
$I_{EBO}$	Emitter-Base Cut-off Current			1	mA	$V_{EB}=9\text{V}, I_C=0$
$HFE(1)$	DC Current Gain	8		40		$V_{CE}=5\text{V}, I_C=5\text{A}$
$HFE(2)$		6		30		$V_{CE}=5\text{V}, I_C=8\text{A}$
$V_{CE(sat)1}$	Collector- Emitter Saturation Voltage			1	V	$I_C=5\text{A}, I_B=1\text{A}$
$V_{CE(sat)2}$				1.5	V	$I_C=8\text{A}, I_B=1.6\text{A}$
$V_{CE(sat)3}$				3	V	$I_C=12\text{A}, I_B=3\text{A}$
$V_{BE(sat)1}$	Base-Emitter Saturation Voltage			1.2	V	$I_C=5\text{A}, I_B=1\text{A}$
$V_{BE(sat)2}$				1.6	V	$I_C=8\text{A}, I_B=1.6\text{A}$
$C_{ob}$	Output Capacitance		180		pF	$V_{CB}=10\text{V}, f=0.1\text{MHz}$
$f_T$	Current Gain-Bandwidth Product	4			MHz	$V_{CE}=10\text{V}, I_C=0.5\text{A}$
$t_{ON}$	Turn On Time			1.1	$\mu\text{s}$	$V_{CC}=125\text{V}, I_C=8\text{A}, I_{B1}=1.6\text{A}, I_{B2}=-1.6\text{A}$
$t_{STG}$	Storage Time			3	$\mu\text{s}$	
$t_F$	Fall Time			0.7	$\mu\text{s}$	

