



HIGH VOLTAGE SWITCH MODE APPLICATIONS

High Speed Switching

Suitable for Switching Regulator and Monitor Control

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

T_{stg}	Storage Temperature	$-55\sim 150^{\circ}\text{C}$
T_j	Junction Temperature	150°C
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-263 (D2PAK)



- 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
V_{CEO}	Collector-Emitter Breakdown Voltage	400			V	$I_C=10\text{mA}$, $I_B=0$
I_{EBO}	Emitter-Base Cut-off Current			1	mA	$V_{\text{EB}}=9\text{V}$, $I_C=0$
$H_{\text{FE}}(1)$	DC Current Gain	8		40		$V_{\text{CE}}=5\text{V}$, $I_C=5\text{A}$
$H_{\text{FE}}(2)$		6		30		$V_{\text{CE}}=5\text{V}$, $I_C=8\text{A}$
$V_{\text{CE(sat)1}}$	Collector- Emitter Saturation Voltage			1	V	$I_C=5\text{A}$, $I_B=1\text{A}$
$V_{\text{CE(sat)2}}$				1.5	V	$I_C=8\text{A}$, $I_B=1.6\text{A}$
$V_{\text{CE(sat)3}}$				3	V	$I_C=12\text{A}$, $I_B=3\text{A}$
$V_{\text{BE(sat)1}}$	Base-Emitter Saturation Voltage			1.2	V	$I_C=5\text{A}$, $I_B=1\text{A}$
$V_{\text{BE(sat)2}}$				1.6	V	$I_C=8\text{A}$, $I_B=1.6\text{A}$
C_{ob}	Output Capacitance		180		pF	$V_{\text{CB}}=10\text{V}$, $f=0.1\text{MHz}$
f_{T}	Current Gain-Bandwidth Product	4			MHz	$V_{\text{CE}}=10\text{V}$, $I_C=0.5\text{A}$
t_{ON}	Turn On Time			1.1	μs	$V_{\text{CC}}=125\text{V}$, $I_C=8\text{A}$, $I_{\text{B1}}=1.6\text{A}$, $I_{\text{B2}}=-1.6\text{A}$
t_{STG}	Storage Time			3	μs	
t_{F}	Fall Time			0.7	μs	

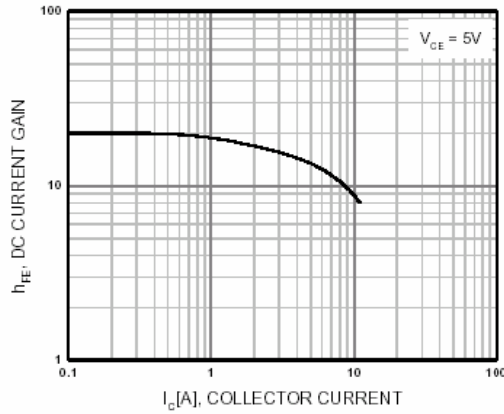


Figure 1. DC current Gain

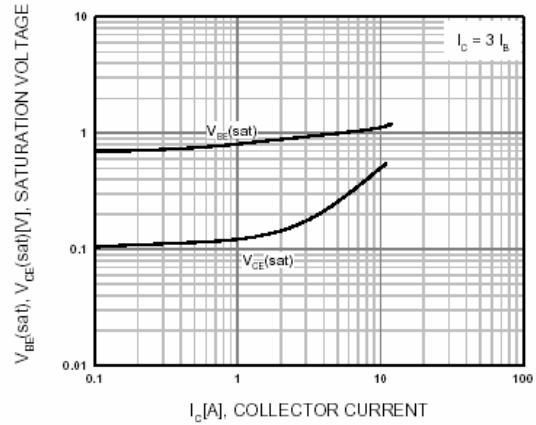


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

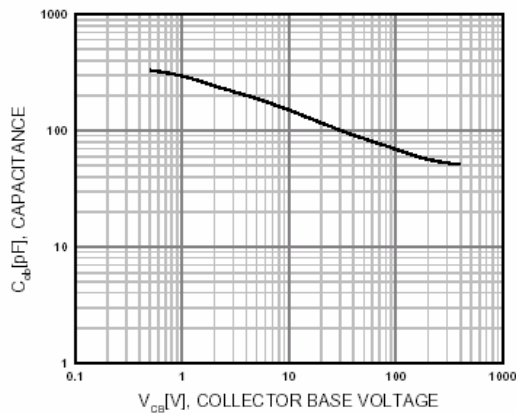


Figure 3. Collector Output Capacitance

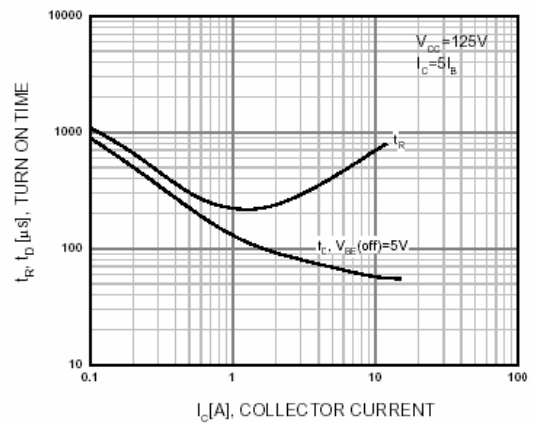


Figure 4. Turn On Time

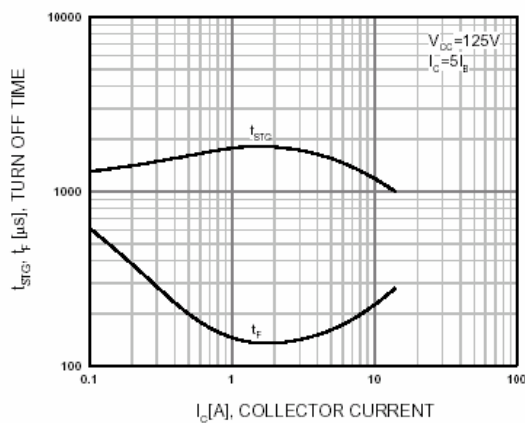


Figure 5. Turn Off Time

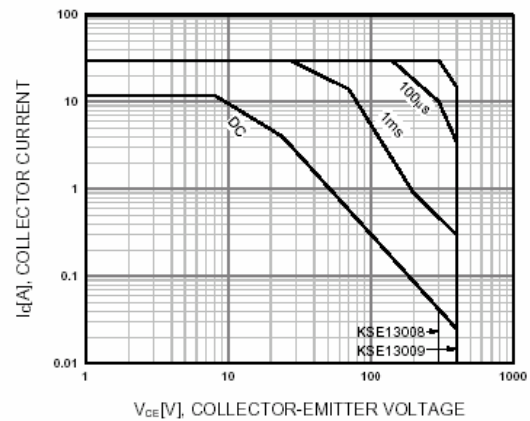


Figure 6. Safe Operating Area



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NPN SILICON TRANSISTOR

KSH13009W

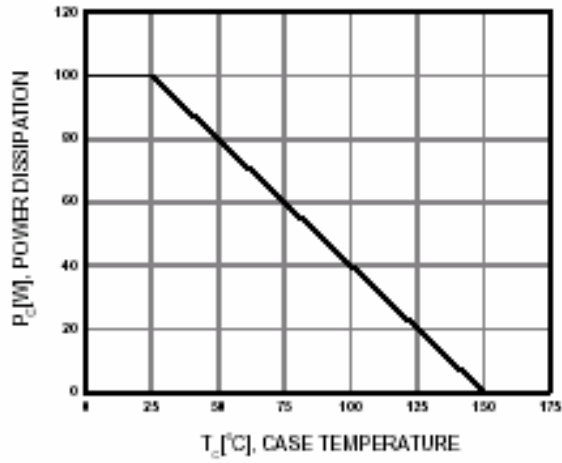


Figure 7. DC current Gain