

**High Voltage Switching
Low Power Switching Regulator
DC-DC Converter**

- High Breakdown Voltage
- Low Collector Saturation Voltage
- High Speed Switching



PNP Silicon Transistor

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

Symbol	Parameter	Ratings	Units
V_{CBO}	Collector-Base Voltage	- 400	V
V_{CEO}	Collector-Emitter Voltage	- 400	V
V_{EBO}	Emitter-Base Voltage	- 7	V
I_B	Base Current	- 0.25	A
I_C	Collector Current (DC)	- 0.5	A
I_{CP}	Collector Current (Pulse)	- 1	A
P_C	Collector Dissipation ($T_a=25^\circ\text{C}$)	1	W
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	10	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 55 ~ 150	$^\circ\text{C}$

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = - 100\text{mA}$, $I_B = - 10\text{mA}$ $L = - 20\text{mH}$	- 400		V
$V_{CEX(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = - 200\text{mA}$, $I_{B1} = - I_{B2} = - 20\text{mA}$ $V_{BE(off)} = 5\text{V}$, $L = 10\text{mH}$	- 400		V
I_{CBO}	Collector Cut-off Current	$V_{CB} = - 400\text{V}$, $I_E = 0$		- 100	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = - 5\text{V}$, $I_C = 0$		- 10	μA
I_{CEX1}	Collector Cut-off Current	$V_{CE} = - 400\text{V}$, $V_{BE(off)} = 1.5\text{V}$		- 100	μA
I_{CEX2}	Collector Cut-off Current	$V_{CE} = - 400\text{V}$, $V_{BE(off)} = 1.5\text{V}$ $T_C = 125^\circ\text{C}$		- 1	mA
h_{FE}	DC Current Gain	$V_{CE} = - 5\text{V}$, $I_C = - 100\text{mA}$	30	200	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = - 100\text{mA}$, $I_B = - 10\text{mA}$		- 1	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = - 100\text{mA}$, $I_B = - 10\text{mA}$		- 1.2	V
t_{ON}	Turn On Time	$V_{CC} = - 150\text{V}$, $I_C = - 100\text{mA}$ $I_{B1} = - 10\text{mA}$, $I_{B2} = 20\text{mA}$ $R_L = 1.5\text{K}\Omega$		1	μs
t_{STG}	Storage Time			4	μs
t_F	Fall Time			1	μs

h_{FE} Classification

Classification	N	R	O	Y
h_{FE}	30 ~ 60	40 ~ 80	60 ~ 120	100 ~ 200

Typical Characteristics

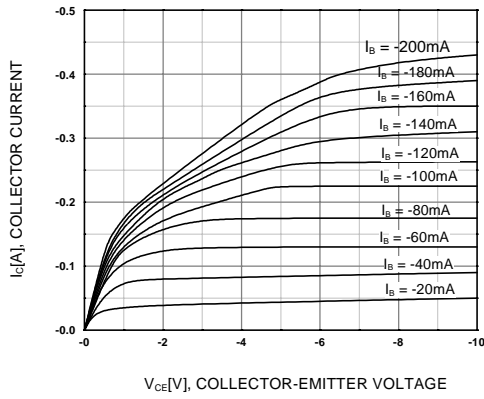


Figure 1. Static Characteristic

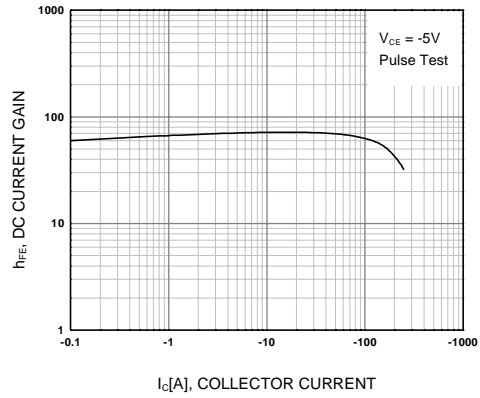


Figure 2. DC current Gain

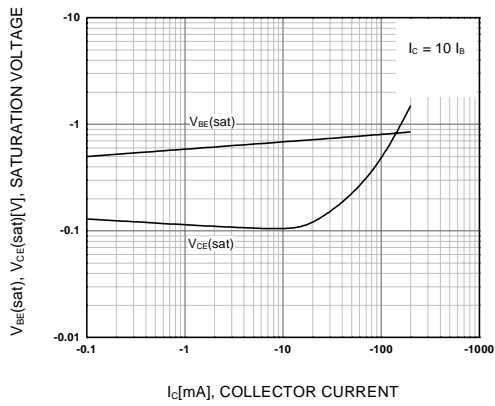


Figure 3. Collector-Emitter Saturation Voltage
Base-Emitter Saturation Voltage

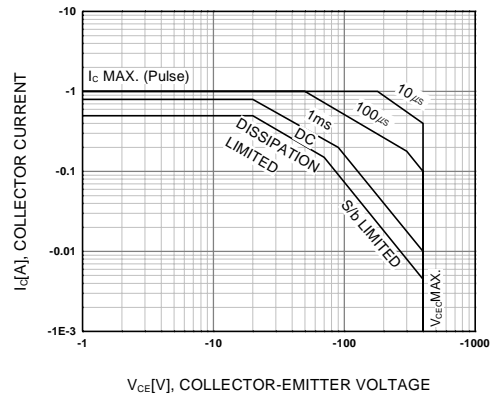


Figure 4. Safe Operating Area

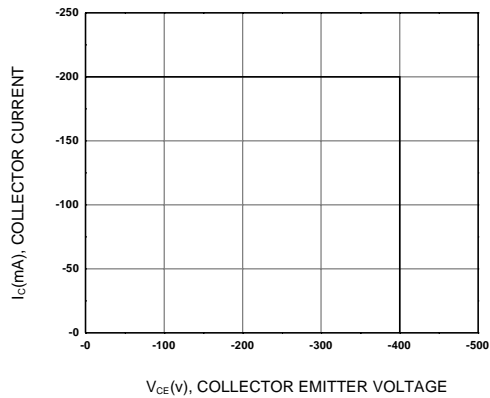


Figure 5. Reverse Bias Safe Operating Area

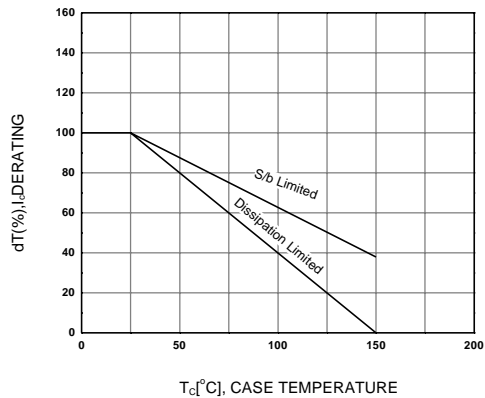


Figure 6. Derating Curve of Safe Operating Areas

Typical characteristics (Continued)

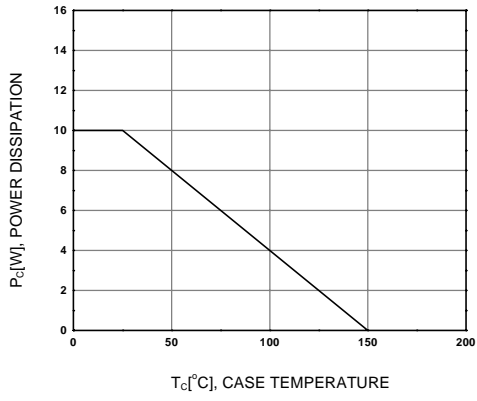


Figure 7. Power Derating

Package Dimensions

KS A1156

TO-126



Dimensions in Millimeters

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