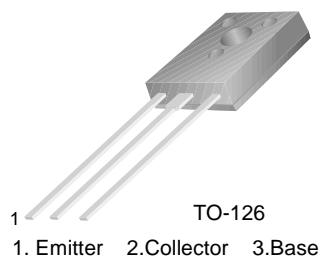


**High Voltage Switching  
Low Power Switching Regulator  
DC-DC Converter**

- 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	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = - 5\text{V}$ , $I_C = 0$		- 10	$\mu\text{A}$
$I_{CEX1}$	Collector Cut-off Current	$V_{CE} = - 400\text{V}$ , $V_{BE(off)} = 1.5\text{V}$		- 100	$\mu\text{A}$
$I_{CEX2}$	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	$\mu\text{s}$
$t_{STG}$	Storage Time			4	$\mu\text{s}$
$t_F$	Fall Time			1	$\mu\text{s}$

**$h_{FE}$  Classification**

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

# Typical Characteristics

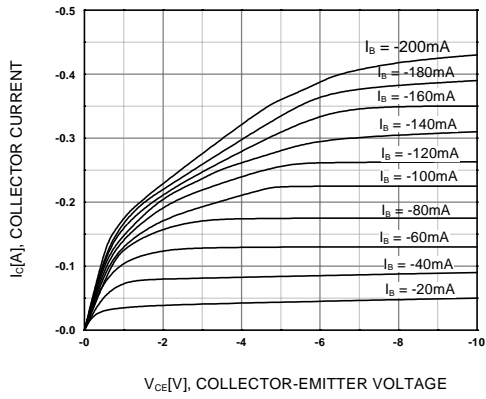


Figure 1. Static Characteristic

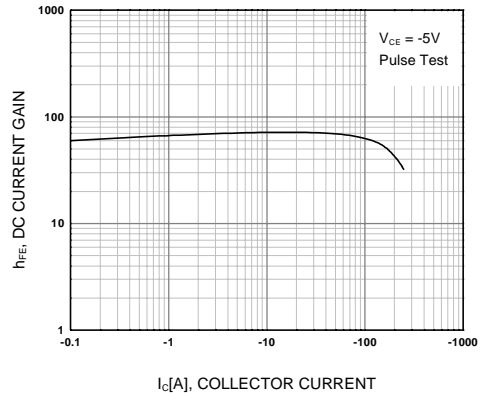


Figure 2. DC current Gain

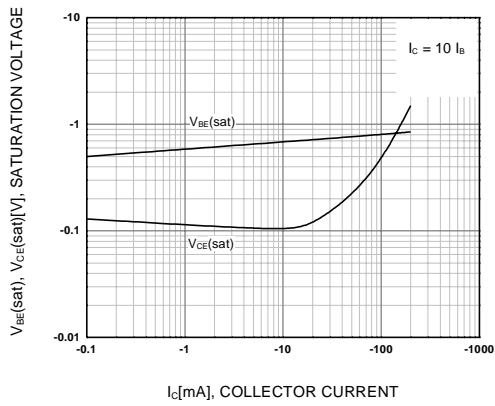


Figure 3. Collector-Emitter Saturation Voltage  
Base-Emitter Saturation Voltage

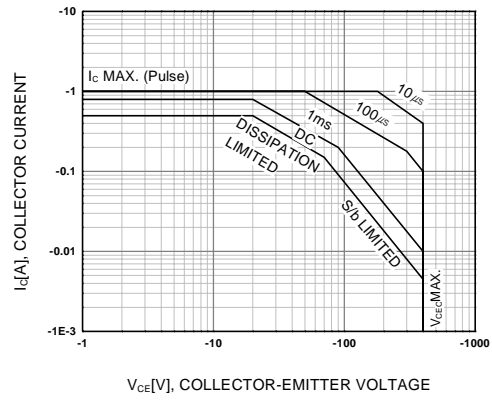


Figure 4. Safe Operating Area

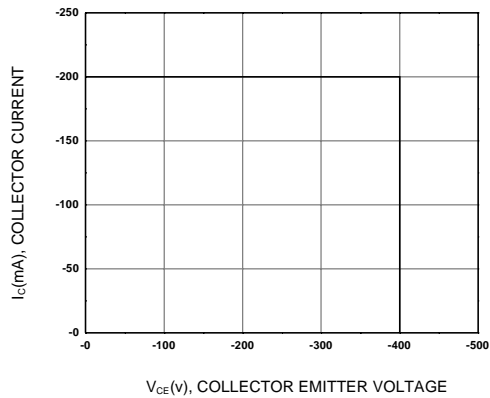


Figure 5. Reverse Bias Safe Operating Area

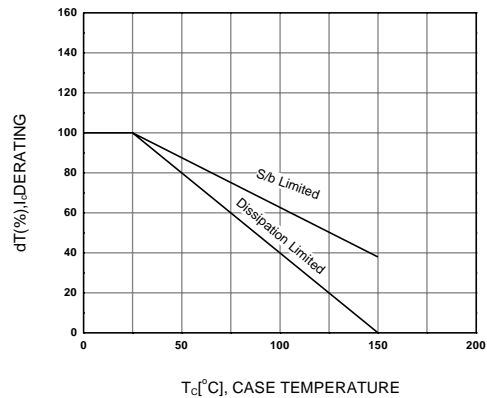


Figure 6. Derating Curve of Safe Operating Areas

### Typical characteristics (Continued)

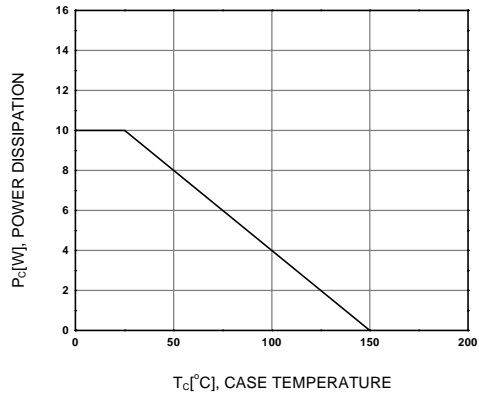
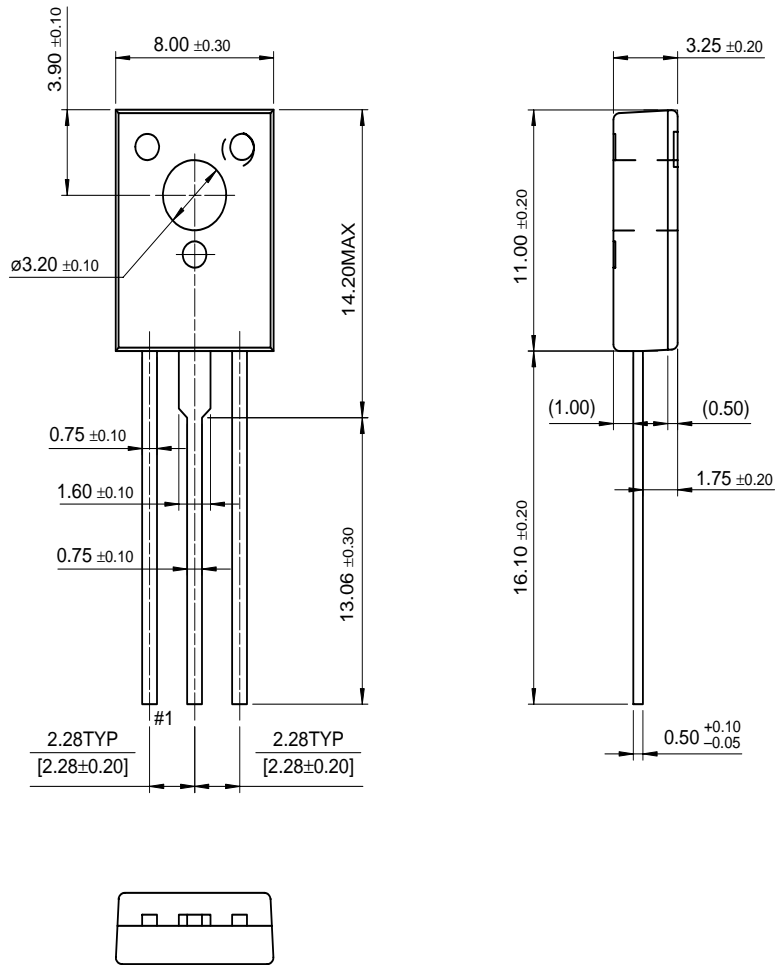


Figure 7. Power Derating

# Package Dimensions

KS A1156

## TO-126



Dimensions in Millimeters

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CROSSVOLT™	POP™	UHC™
E <sup>2</sup> CMOS™	PowerTrench®	VCX™
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