

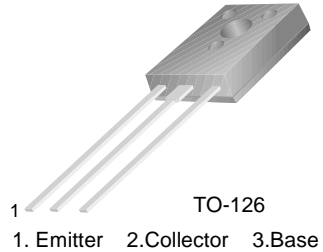


# KSA1156

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## 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

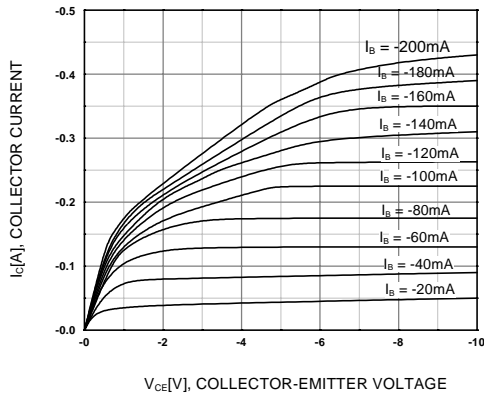


Figure 1. Static Characteristic

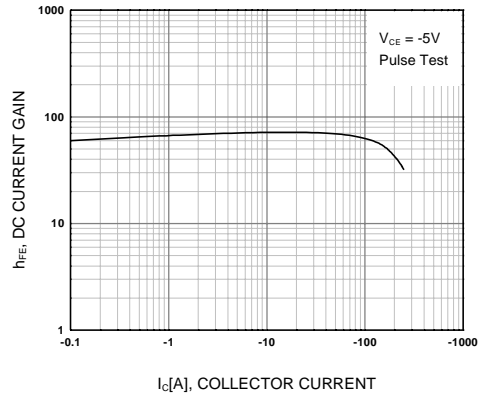


Figure 2. DC current Gain

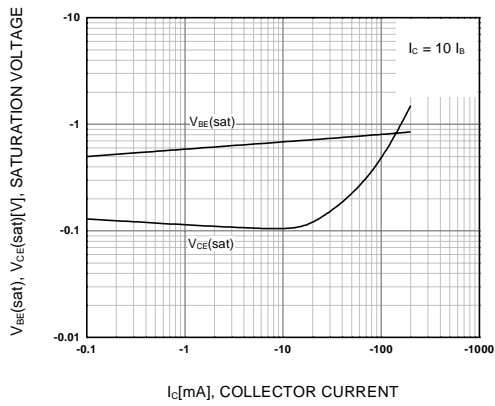


Figure 3. Collector-Emitter Saturation Voltage  
Base-Emitter Saturation Voltage

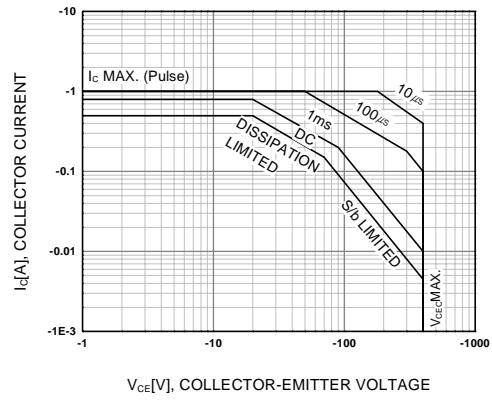


Figure 4. Safe Operating Area

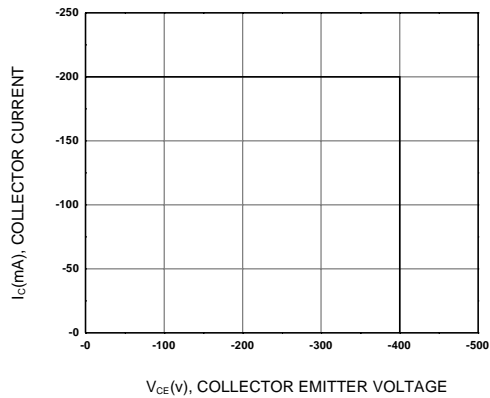


Figure 5. Reverse Bias Safe Operating Area

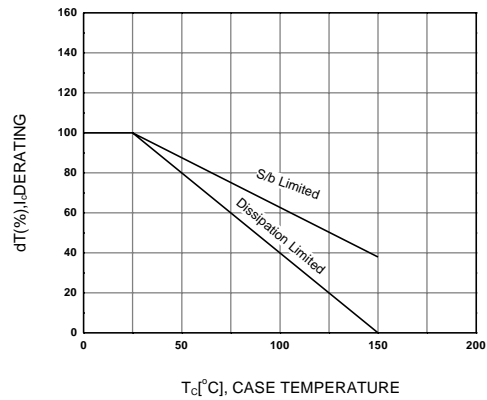


Figure 6. Derating Curve of Safe Operating Areas

### Typical characteristics (Continued)

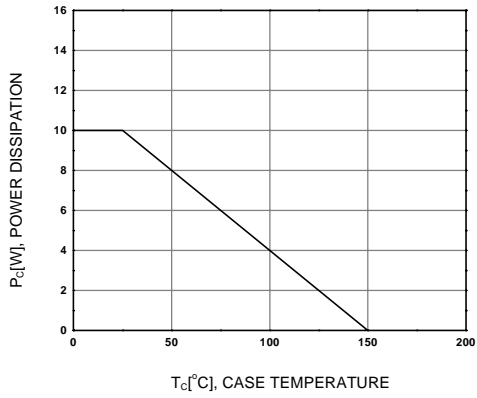
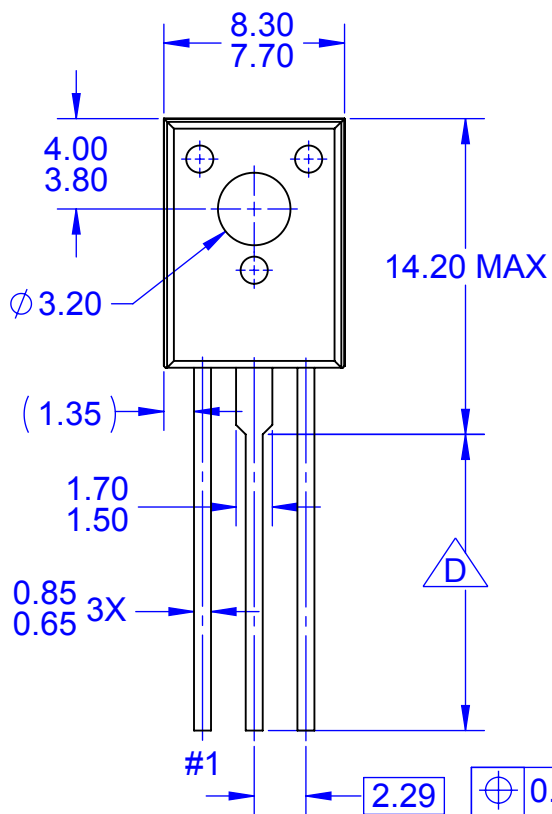
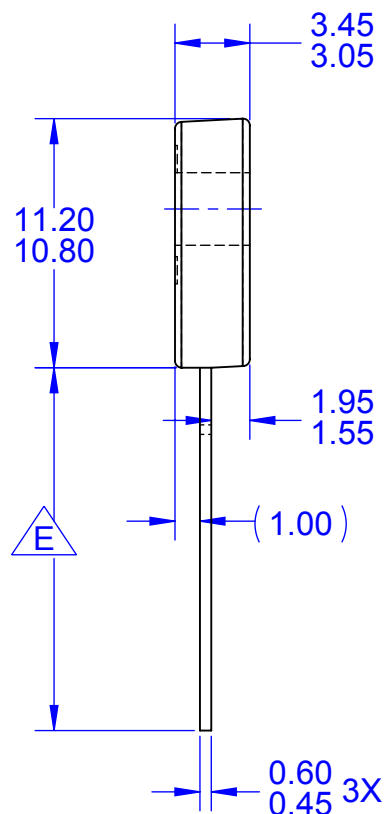


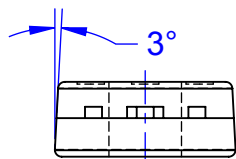
Figure 7. Power Derating



TOP VIEW



SIDE VIEW



FRONT VIEW

PRODUCTION CODE	TERMINAL LENGTH "D"	TERMINAL LENGTH "E"
TSSTU	3.45 - 4.05	6.45-7.45
TSTU	2.36 - 2.96	5.36-6.36
NONE (STD LENGTH)	12.76 - 13.36	15.76-16.76

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$\triangle D$  FOR TERMINAL LENGTH "D", REFER TO TABLE

$\triangle E$  FOR TERMINAL LENGTH "E", REFER TO TABLE

F. DRAWING FILENAME: MKT-TO126AArev2





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