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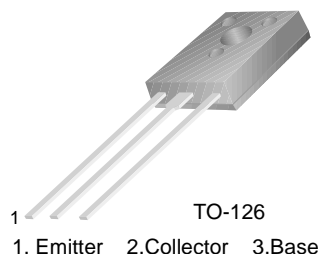
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# KSD985/986

## Low Frequency Power Amplifier

- Low Speed Switching Industrial Use

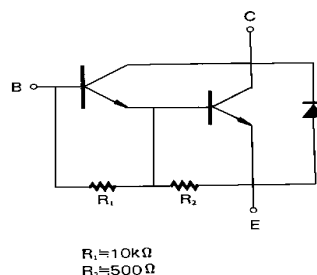


## NPN Epitaxial Silicon Darlington Transistor

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

Symbol	Parameter	Value	Units
V <sub>CBO</sub>	Collector-Base Voltage	150	V
V <sub>CEO</sub>	Collector-Emitter Volage		
	: KSD985	60	V
	: KSD986	80	V
V <sub>EBO</sub>	Emitter-Base Voltage	8.0	V
I <sub>C</sub>	Collector Current (DC)	1.5	A
I <sub>CP</sub>	*Collector Current (Pulse)	3.0	A
I <sub>B</sub>	Base Current	0.15	A
P <sub>C</sub>	Collector Dissipation (T <sub>a</sub> =25°C)	1.0	W
P <sub>C</sub>	Collector Dissipation (T <sub>C</sub> =25°C)	10	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature	- 55 ~ 150	°C

\*  $PW \leq 300\mu\text{s}$ , Duty Cycle 10%



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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 60\text{V}$ , $I_E = 0$			10	$\mu\text{A}$
$I_{CER}$	Collector Cut-off Current	$V_{CE} = 60\text{V}$ , $R_{BE} = 51\Omega$ @ $T_C = 125^\circ\text{C}$			1.0	mA
$I_{CEX1}$ $I_{CEX2}$	Collector Cut-off Current	$V_{CE} = 60\text{V}$ , $V_{BE}(\text{off}) = -1.5\text{V}$ $V_{CE} = 60\text{V}$ , $V_{BE}(\text{off}) = -1.5\text{V}$ @ $T_C = 125^\circ\text{C}$			10 1.0	$\mu\text{A}$ mA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5\text{V}$ , $I_C = 0$			1.0	mA
$h_{FE1}$ $h_{FE2}$	*DC Current Gain	$V_{CE} = 2\text{V}$ , $I_C = 0.5\text{A}$ $V_{CE} = 2\text{V}$ , $I_C = 1\text{A}$	1000 2000		30000	
$V_{CE}(\text{sat})$	*Collector-Emitter Saturation Voltage	$I_C = 1\text{A}$ , $I_B = 1\text{mA}$			1.5	V
$V_{BE}(\text{sat})$	*Base-Emitter Saturation Voltage	$I_C = 1\text{A}$ , $I_B = 1\text{mA}$			2.0	V
$t_{ON}$	Turn ON Time	$V_{CC} = 50\text{V}$ , $I_C = 1\text{A}$		0.5		$\mu\text{s}$
$t_{STG}$	Storage Time	$I_{B1} = -I_{B2} = 1\text{mA}$ $R_L = 50\Omega$		1.0		$\mu\text{s}$
$t_F$	Fall Time			1.0		$\mu\text{s}$

\* Pulse Test:  $PW \leq 350\mu\text{s}$ , Duty Cycle  $\leq 2\%$

### $h_{FE}$ Classification

Classification	R	O	Y
$h_{FE2}$	2000 ~ 5000	4000 ~ 10000	8000 ~ 30000

## Typical Characteristics

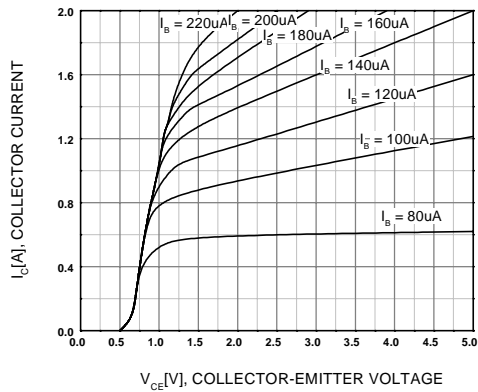


Figure 1. Static Characteristic

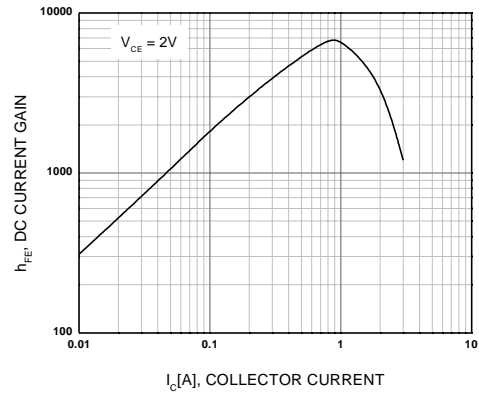


Figure 2. DC current Gain

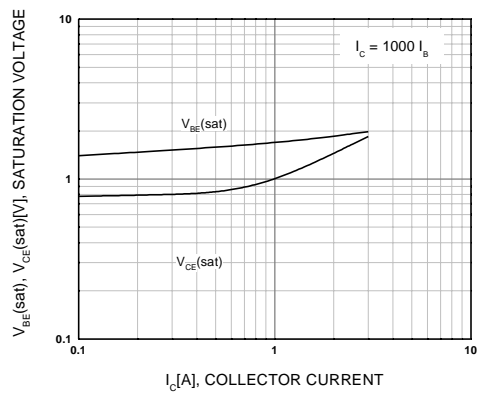


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

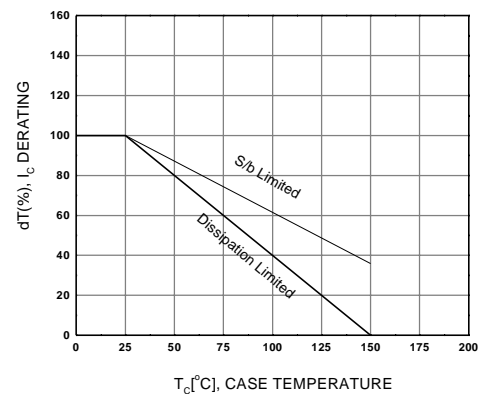


Figure 4. Derating Curve Of Safe Operating Areas

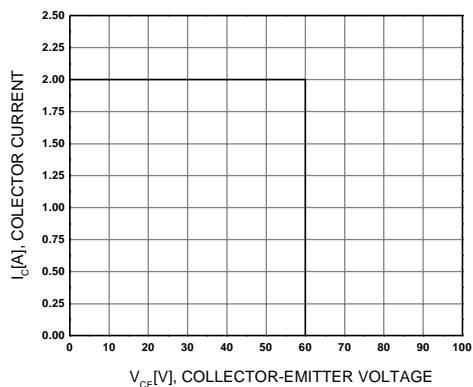


Figure 5. Reverse Bias Safe Operating Areas

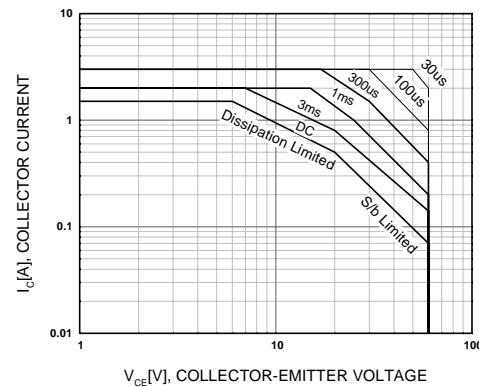


Figure 6. Safe Operating Area

## Typical Characteristics (Continued)

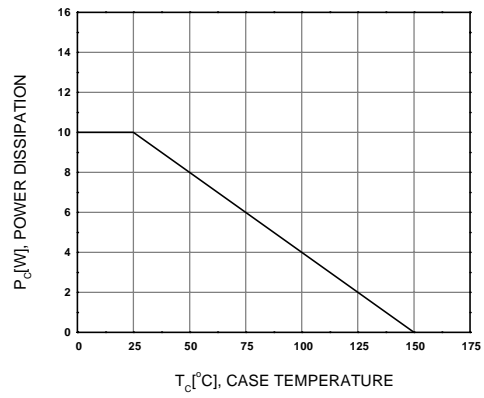
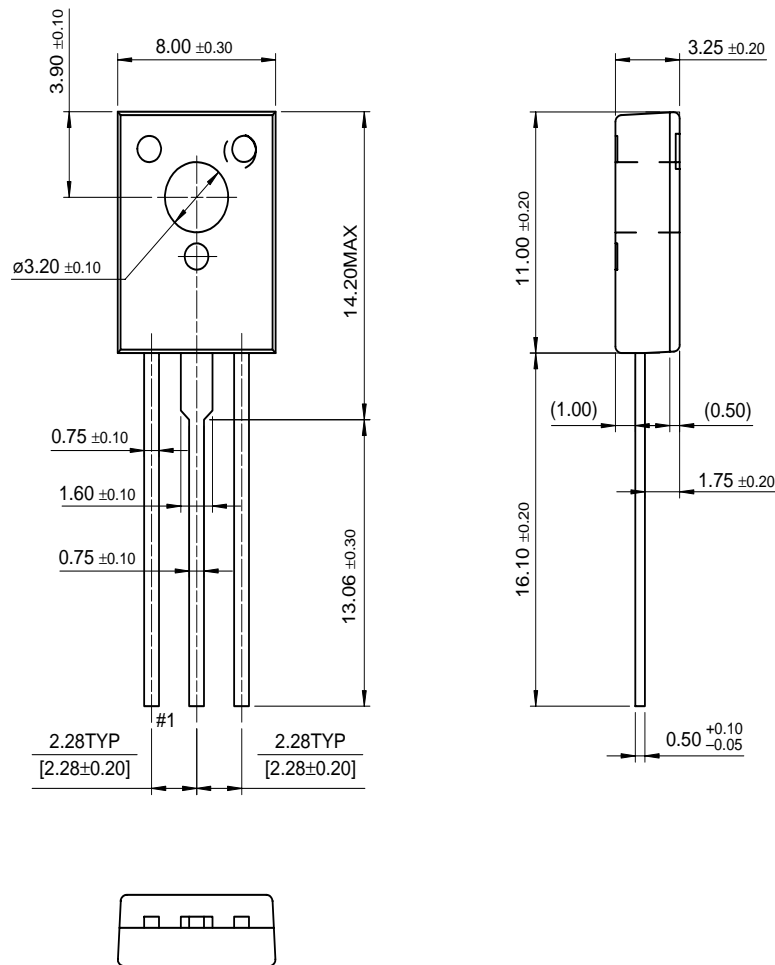


Figure 7. Power Derating

# Package Dimensions

KSD985/986

## TO-126



Dimensions in Millimeters

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