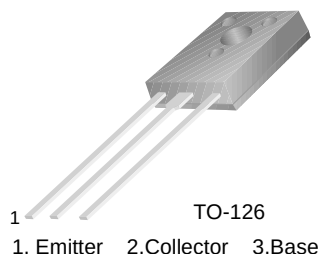


KSD985/986

Low Frequency Power Amplifier

- Low Speed Switching Industrial Use

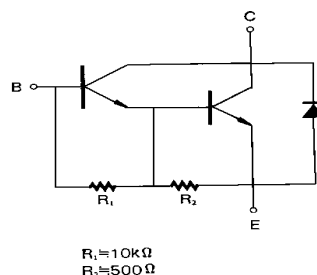


NPN Epitaxial Silicon Darlington Transistor

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

Symbol	Parameter	Value	Units
V _{CBO}	Collector-Base Voltage	150	V
V _{CEO}	Collector-Emitter Volage		
	: KSD985	60	V
	: KSD986	80	V
V _{EBO}	Emitter-Base Voltage	8.0	V
I _C	Collector Current (DC)	1.5	A
I _{CP}	*Collector Current (Pulse)	3.0	A
I _B	Base Current	0.15	A
P _C	Collector Dissipation (T _a =25°C)	1.0	W
P _C	Collector Dissipation (T _C =25°C)	10	W
T _J	Junction Temperature	150	°C
T _{STG}	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	μA
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	μA 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		μs
t_{STG}	Storage Time	$I_{B1} = -I_{B2} = 1\text{mA}$ $R_L = 50\Omega$		1.0		μs
t_F	Fall Time			1.0		μs

* 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

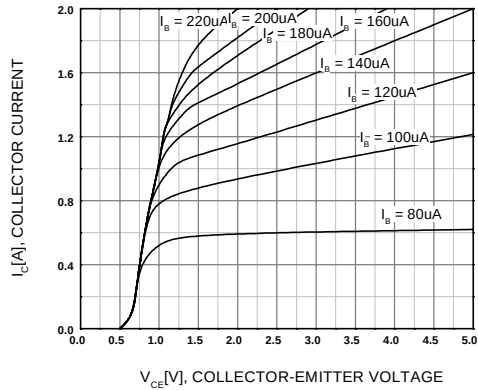


Figure 1. Static Characteristic

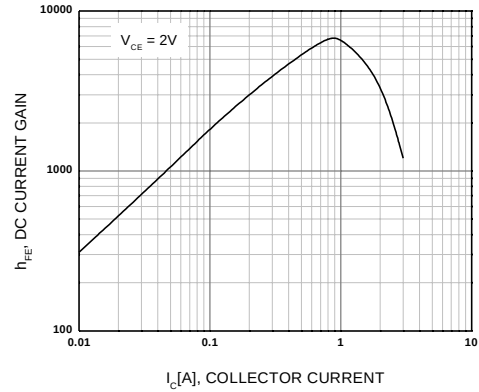


Figure 2. DC current Gain

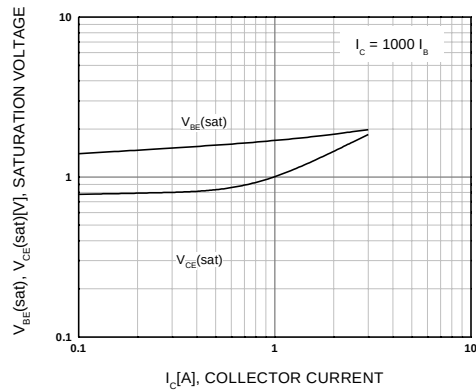


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

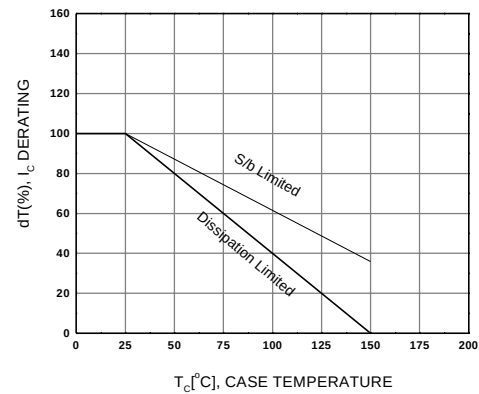


Figure 4. Derating Curve Of Safe Operating Areas

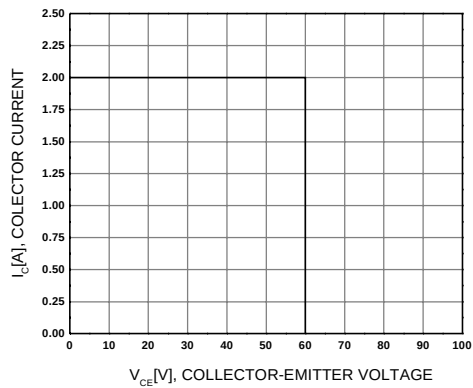


Figure 5. Reverse Bias Safe Operating Areas

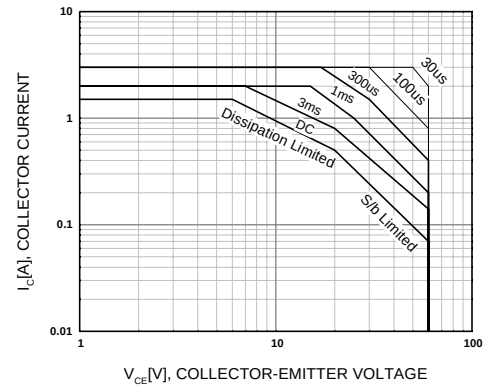


Figure 6. Safe Operating Area

Typical Characteristics (Continued)

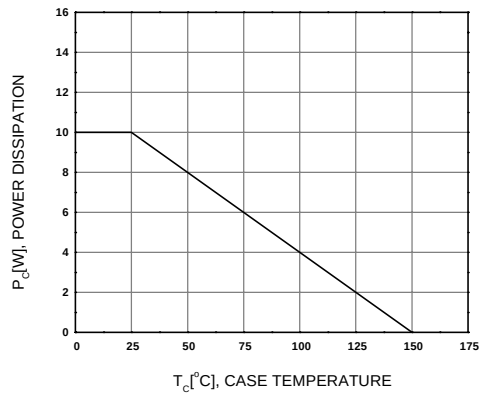
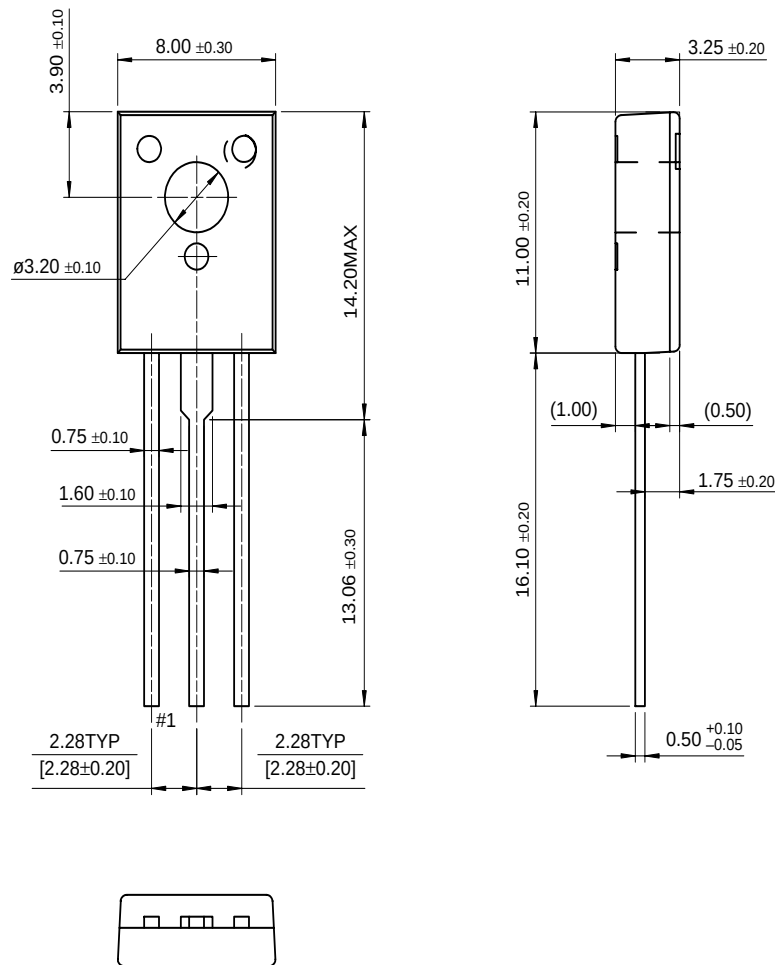


Figure 7. Power Derating

Package Dimensions

TO-126



Dimensions in Millimeters

KSD985/986

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