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**Feature**

- High Dc Current Gain
- Low Collector Saturation Voltage
- Built-in a Damper Diode at E-C
- High Power Dissipation :  $P_C = 1.3W$  ( $T_a=25^\circ C$ )

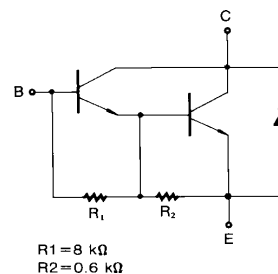


**NPN Silicon Darlington Transistor**

**Absolute Maximum Ratings**  $T_C=25^\circ C$  unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	150	V
$V_{CEO}$	Collector-Emitter Voltage	100	V
$V_{EBO}$	Emitter-Base Voltage	8	V
$I_C$	Collector Current (DC)	3	A
$I_{CP}$	*Collector Current (Pulse)	5	A
$P_C$	Collector Dissipation ( $T_a=25^\circ C$ )	1.3	A
$P_C$	Collector Dissipation ( $T_C=25^\circ C$ )	15	W
$T_J$	Junction Temperature	150	W
$T_{STG}$	Storage Temperature	- 55 ~ 150	$^\circ C$

\*  $PW \leq 10ms$ , duty Cycle  $\leq 50\%$



**Electrical Characteristics**  $T_C=25^\circ C$  unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 100V, I_E = 0$			10	$\mu A$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5V, I_C = 0$			2	mA
$h_{FE1}$ $h_{FE2}$	*DC Current Gain	$V_{CE} = 2V, I_C = 1.5A$ $V_{CE} = 2V, I_C = 3A$	2K 1K		20K	
$V_{CE(sat)}$	*Collector-Emitter Saturation Voltage	$I_C = 1.5A, I_B = 1.5mA$		0.9	1.2	V
$V_{BE(sat)}$	*Base-Emitter Saturation Voltage	$I_C = 1.5A, I_B = 1.5mA$		1.5	2	V
$t_{ON}$	Turn ON Time	$V_{CC} = 40V, I_C = 1.5A$ $I_{B1} = - I_{B2} = 1.5mA$ $R_L = 27\Omega$		0.5		$\mu s$
$t_{STG}$	Storage Time			2		$\mu s$
$t_F$	Fall Time			1		$\mu s$

\* Pulse test:  $PW \leq 350\mu s$ , duty Cycle  $\leq 2\%$  Pulsed

**$h_{FE}$  Classification**

Classification	O	Y	G
$h_{FE1}$	2000 ~ 5000	4000 ~ 12000	6000 ~ 20000

# Typical Characteristics

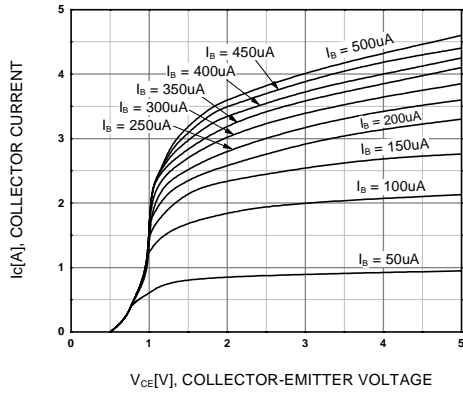


Figure 1. Static Characteristic

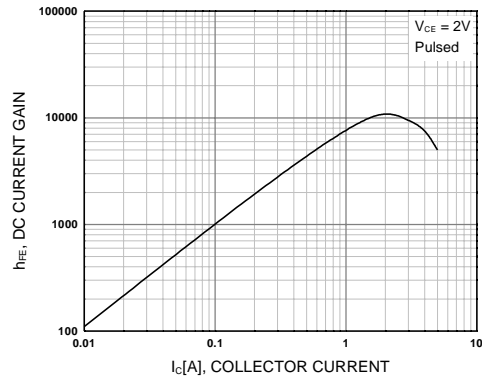


Figure 2. DC current Gain

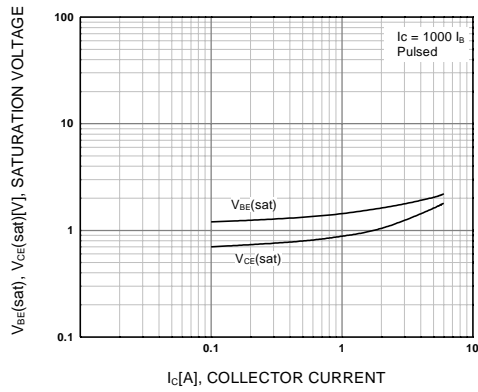


Figure 3. Collector-Emitter Saturation Voltage Base-Emitter Saturation Voltage

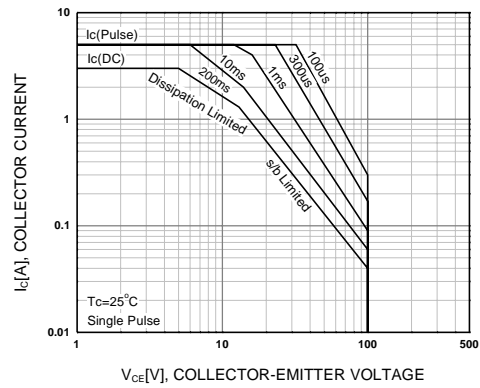


Figure 4. Forward Bias Safe Operating Areas

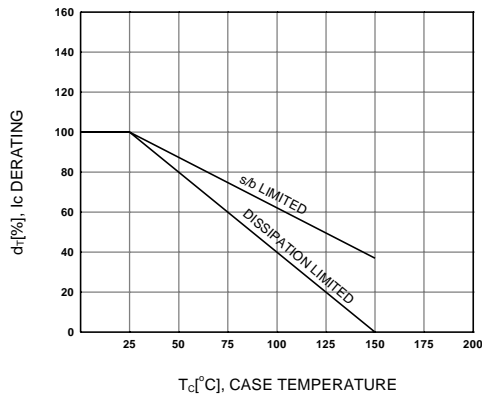


Figure 5. Derating Curve of Safe Operating Areas

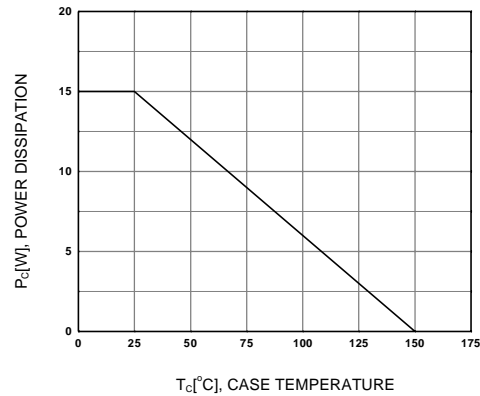


Figure 6. Power Derating

# Package Dimensions

KSD1692

## TO-126



Dimensions in Millimeters

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