

isc Silicon NPN Darlington Power Transistor
2SD1509
DESCRIPTION

- High DC Current Gain-
: $h_{FE} = 2000(\text{Min})@ I_C = 1\text{A}$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(\text{SUS})} = 80\text{V}(\text{Min})$
- Low Collector-Emitter Saturation Voltage-
: $V_{CE(\text{sat})} = 1.5\text{V}(\text{Max})@ I_C = 1\text{A}$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

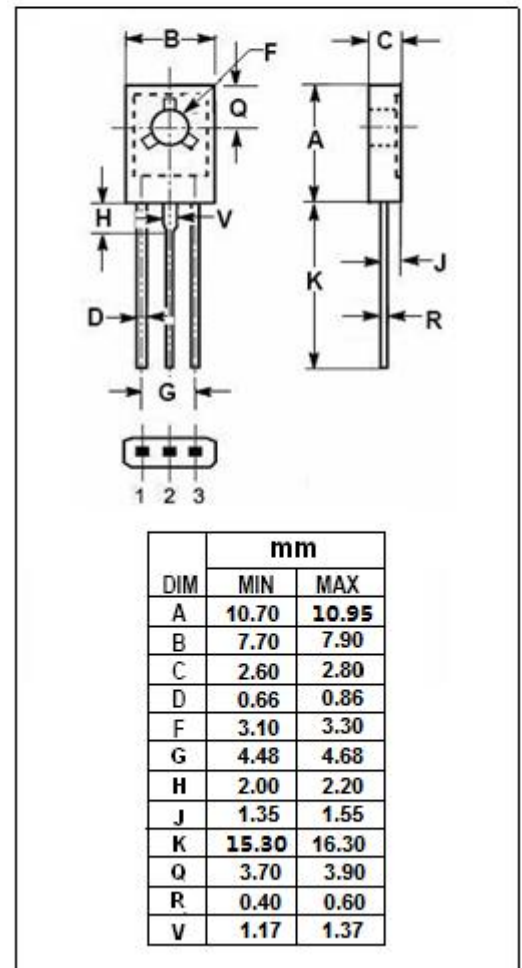
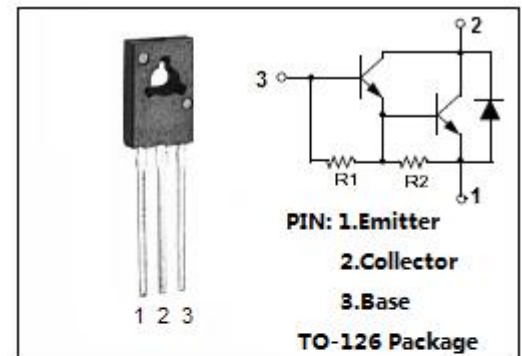
- Designed for general purpose amplifier and low speed switching applications.

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	80	V
V_{CEO}	Collector-Emitter Voltage	80	V
V_{EBO}	Emitter-Base Voltage	8	V
I_C	Collector Current-Continuous	2	A
I_{CM}	Collector Current-Peak	4	A
I_B	Base Current	0.5	A
P_C	Collector Power Dissipation $T_c = 25^\circ\text{C}$	10	W
	Collector Power Dissipation $T_a = 25^\circ\text{C}$	1.5	
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{\text{th } j-c}$	Thermal Resistance, Junction to Case	2.5	$^\circ\text{C/W}$
$R_{\text{th } j-a}$	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

T_c=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CEO(SUS)}	Collector-Emitter Sustaining Voltage	I _c = 30mA, I _B = 0	80			V
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _c = 1A, I _B = 1mA			1.5	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _c = 1A, I _B = 1mA			2.0	V
I _{CBO}	Collector Cutoff Current	V _{CB} = 80V, I _E = 0			10	uA
I _{EBO}	Emitter Cutoff Current	V _{EB} =8V; I _c = 0			4.0	mA
h _{FE-1}	DC Current Gain	I _c = 1A; V _{CE} = 2V	2000			

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