

isc Silicon NPN Darlington Power Transistor
2SD1023
DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 200V(\text{Min})$
- High DC Current Gain
: $h_{FE} = 1500(\text{Min}) @ I_C = 3A$
- Low Saturation Voltage
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

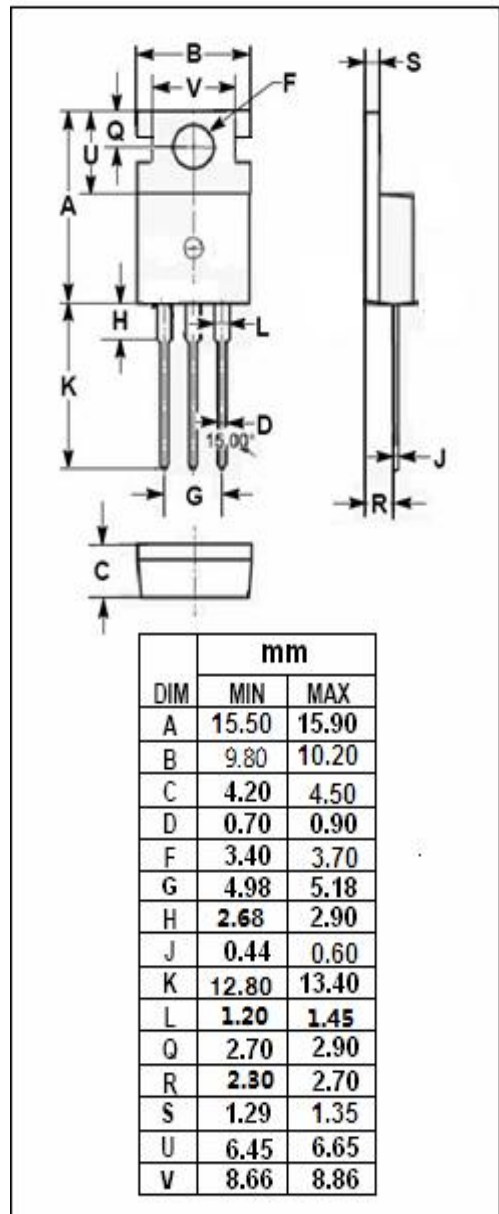
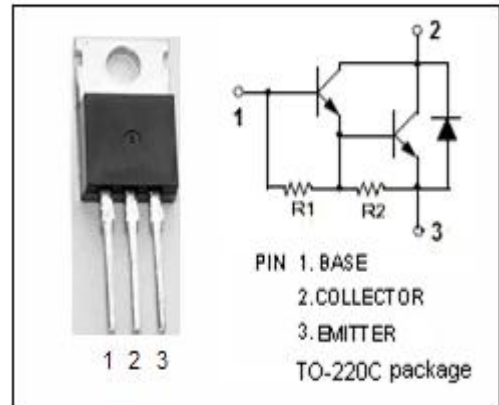
- Designed for general purpose amplifier applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	200	V
V_{CEO}	Collector-Emitter Voltage	200	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	5	A
I_{CP}	Collector Current-Peak	8	A
I_B	Base Current-Continuous	0.5	A
I_{BM}	Base Current-Peak	1	A
P_C	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	30	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	4.17	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

T_C=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 3A; I _B = 5mA			1.5	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C = 3A; I _B = 5mA			2.0	V
I _{CBO}	Collector Cutoff Current	V _{CB} = 200V; I _E = 0			0.1	mA
I _{CEO}	Collector Cutoff Current	V _{CE} = 200V; I _B = 0			0.1	mA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 7V; I _C =0			5	mA
h _{FE}	DC Current Gain	I _C = 3A; V _{CE} = 3V	1500		30000	
f _T	Current-Gain—Bandwidth Product	I _C = 0.5A; V _{CE} = 10V		20		MHz

Switching times

t _{on}	Turn-on Time	I _C = 3A, I _{B1} = I _{B2} = 5mA R _L = 10 Ω; V _{BB2} = 4V			2.0	μs
t _{stg}	Storage Time				8.0	μs
t _f	Fall Time				5.0	μs

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