

isc Silicon NPN Power Transistor
MJE180
DESCRIPTION

- Collector–Emitter Sustaining Voltage—
: $V_{CEO(SUS)} = 40\text{ V}$
- DC Current Gain—
: $h_{FE} = 30(\text{Min}) @ I_C = 0.5\text{ A}$
= $12(\text{Min}) @ I_C = 1.5\text{ A}$
- Complement to the PNP MJE170
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

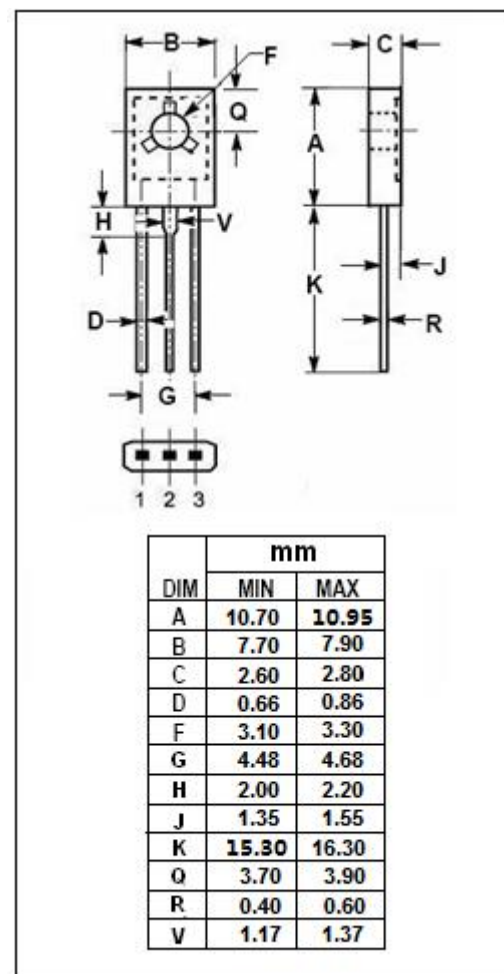
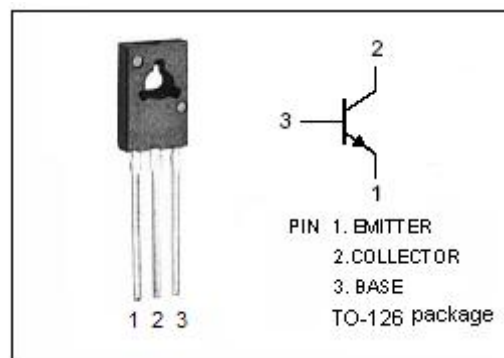
- Low power audio amplifier
- Low current high speed switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emmitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	3	A
I_{CM}	Collector Current-peak	6	A
I_B	Base Current	1	A
P_C	Collector Power Dissipation $T_a=25^\circ\text{C}$	1.5	W
	Collector Power Dissipation $T_c=25^\circ\text{C}$	12.5	
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	10	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	83.4	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

T_c =25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V _{CEO(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 10mA; I _B = 0	40		V
V _{CE(sat)-1}	Collector-Emitter Saturation Voltage	I _C = 0.5 A ;I _B = 50mA		0.3	V
V _{CE(sat)-2}	Collector-Emitter Saturation Voltage	I _C = 1.5A ;I _B = 0.15 A		0.9	V
V _{CE(sat)-3}	Collector-Emitter Saturation Voltage	I _C = 3A ;I _B = 0.6 A		1.7	V
V _{BE(sat)-1}	Base-Emitter Saturation Voltage	I _C = 1.5A; I _B = 0.15A		1.5	V
V _{BE(sat)-2}	Base-Emitter Saturation Voltage	I _C = 3A; I _B = 0.6A		2.0	V
V _{BE(on)}	Base-Emitter On Voltage	V _{CE} = 1V; I _C = 0.5A		1.2	V
I _{CBO}	Collector Cutoff Current	V _{CB} = 60V; I _E = 0 V _{CB} = 60V; I _E = 0; T _C = 150°C		0.1 0.1	μ A mA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 7V; I _C = 0		0.1	μ A
h _{FE-1}	DC Current Gain	I _C = 0.1 A ; V _{CE} = 1V	50	250	
h _{FE-2}	DC Current Gain	I _C = 0.5A ; V _{CE} = 1V	30		
h _{FE-3}	DC Current Gain	I _C = 1.5 A ; V _{CE} = 1V	12		

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