

INCHANGE Semiconductor

isc Product Specification

isc Silicon NPN Power Transistor

MJE243

DESCRIPTION

- Collector–Emitter Sustaining Voltage–  
:  $V_{CEO(SUS)} = 100\text{ V(Min)}$
- DC Current Gain–  
:  $h_{FE} = 40(\text{Min}) @ I_C = 0.2\text{ A}$
- Low Collector Saturation Voltage–  
:  $V_{CE(sat)} = 0.3\text{V(Max.)} @ I_C = 0.5\text{ A}$
- Complement to Type MJE253

APPLICATIONS

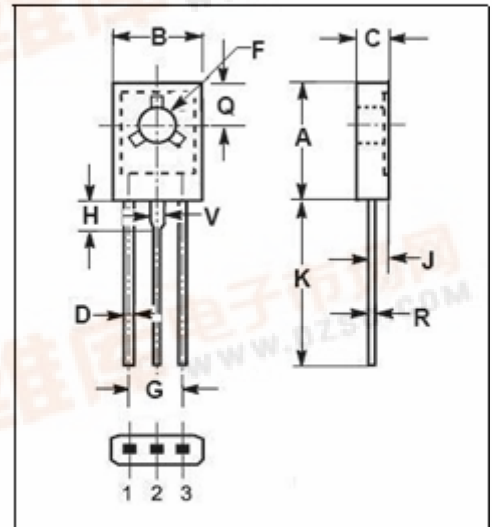
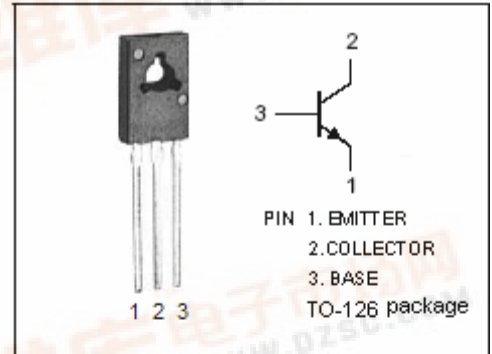
- Designed for low power audio amplifier and low-current, high-speed switching applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	100	V
$V_{CEO}$	Collector-Emitter Voltage	100	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	4	A
$I_{CM}$	Collector Current-Peak	8	A
$I_B$	Base Current	1	A
$P_C$	Collector Power Dissipation $T_a=25^\circ\text{C}$	1.5	W
	Collector Power Dissipation $T_C=25^\circ\text{C}$	15	
$T_j$	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	8.34	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance,Junction to Ambient	83.4	$^\circ\text{C/W}$



DIM	mm	
	MIN	MAX
A	10.70	10.90
B	7.70	7.90
C	2.60	2.80
D	0.66	0.86
F	3.10	3.30
G	4.48	4.68
H	2.00	2.20
J	1.35	1.55
K	16.10	16.30
Q	3.70	3.90
R	0.40	0.60
V	1.17	1.37



## isc Silicon NPN Power Transistor

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## ELECTRICAL CHARACTERISTICS

 $T_C = 25^\circ\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C = 10\text{mA}; I_B = 0$	100		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C = 0.5\text{A}; I_B = 50\text{mA}$		0.3	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C = 1\text{A}; I_B = 0.1\text{A}$		0.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 2\text{A}; I_B = 0.2\text{A}$		1.8	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 0.5\text{A}; V_{CE} = 1\text{V}$		1.5	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 100\text{V}; I_E = 0$ $V_{CB} = 100\text{V}; I_E = 0; T_C = 125^\circ\text{C}$		0.1 0.1	$\mu\text{A}$ mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 7\text{V}; I_C = 0$		0.1	$\mu\text{A}$
$h_{FE-1}$	DC Current Gain	$I_C = 0.2\text{A}; V_{CE} = 1\text{V}$	40	180	
$h_{FE-2}$	DC Current Gain	$I_C = 1\text{A}; V_{CE} = 1\text{V}$	15		
$f_T$	Current-Gain—Bandwidth Product	$I_C = 0.1\text{A}; V_{CE} = 10\text{V}; f_{test} = 10\text{MHz}$	40		MHz
$C_{OB}$	Collector Capacitance	$I_E = 0; V_{CB} = 10\text{V}; f_{test} = 0.1\text{MHz}$		50	pF