

isc Silicon NPN Power Transistor

MJE8503

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 800V(\text{Min})$
- High Switching Speed

APPLICATIONS

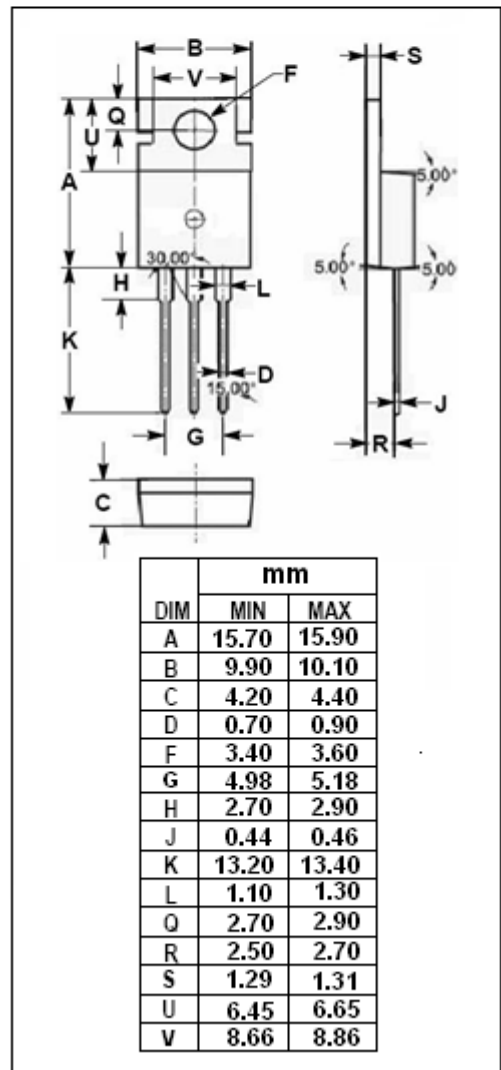
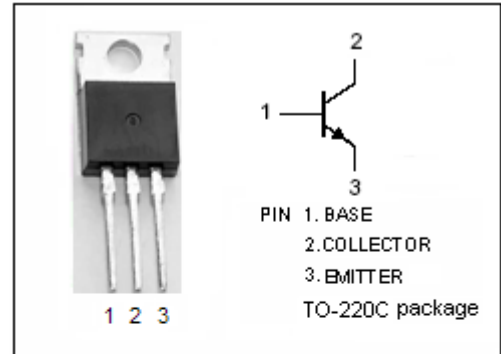
- Designed for high-voltage ,high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line operated switch-mode applications.
Typical applications:
- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CEV}	Collector-Emitter Voltage	1400	V
$V_{CEO(SUS)}$	Collector-Emitter Voltage	800	V
V_{EBO}	Emitter-Base Voltage	8	V
I_C	Collector Current-Continuous	5	A
I_{CM}	Collector Current-Peak	10	A
I_B	Base Current-Continuous	4	A
I_{BM}	Base Current-Peak	8	A
P_C	Collector Power Dissipation@ $T_c=25^\circ\text{C}$	80	W
T_J	Junction Temperature	125	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~125	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance,Junction to Case	1.25	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEQ(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=100\text{mA}$; $I_B=0$	800			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=2.5\text{A}$; $I_B=1\text{A}$ $I_C=2.5\text{A}$; $I_B=1\text{A}$, $T_C=100^{\circ}\text{C}$			2.0 3.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=5\text{A}$; $I_B=2\text{A}$			5.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=2.5\text{A}$; $I_B=1\text{A}$ $I_C=2.5\text{A}$; $I_B=1\text{A}$, $T_C=100^{\circ}\text{C}$			1.5 1.5	V
I_{CEV}	Collector Cutoff Current	$V_{CEV}=1400\text{V}$; $V_{BE(off)}=1.5\text{V}$ $V_{CEV}=1400\text{V}$; $V_{BE(off)}=1.5\text{V}$; $T_C=100^{\circ}\text{C}$			0.25 5.0	mA
I_{CER}	Collector Cutoff Current	$V_{CE}=1400\text{V}$; $R_{BE}=50\Omega$, $T_C=100^{\circ}\text{C}$			5.0	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=7\text{V}$; $I_C=0$			1.0	mA
h_{FE}	DC Current Gain	$I_C=1\text{A}$; $V_{CE}=5\text{V}$	7.5			
C_{OB}	Output Capacitance	$I_E=0$; $V_{CB}=10\text{V}$; $f_{test}=1.0\text{kHz}$	60		300	pF

Switching times; Resistive Load

t_d	Delay Time	$I_C=2.5\text{A}$, $V_{CC}=500\text{V}$, $V_{BE(off)}=5\text{V}$ $I_{B1}=1\text{A}$; $t_p=50\mu\text{s}$ Duty Cycle $\leq 2.0\%$		40	200	ns
t_r	Rise Time			125	2000	ns
t_s	Storage Time			1200	4000	ns
t_f	Fall Time			650	2000	ns