

**isc Silicon NPN Power Transistor**

**MJE8500**

**DESCRIPTION**

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 700V(\text{Min})$
- High Switching Speed

**APPLICATIONS**

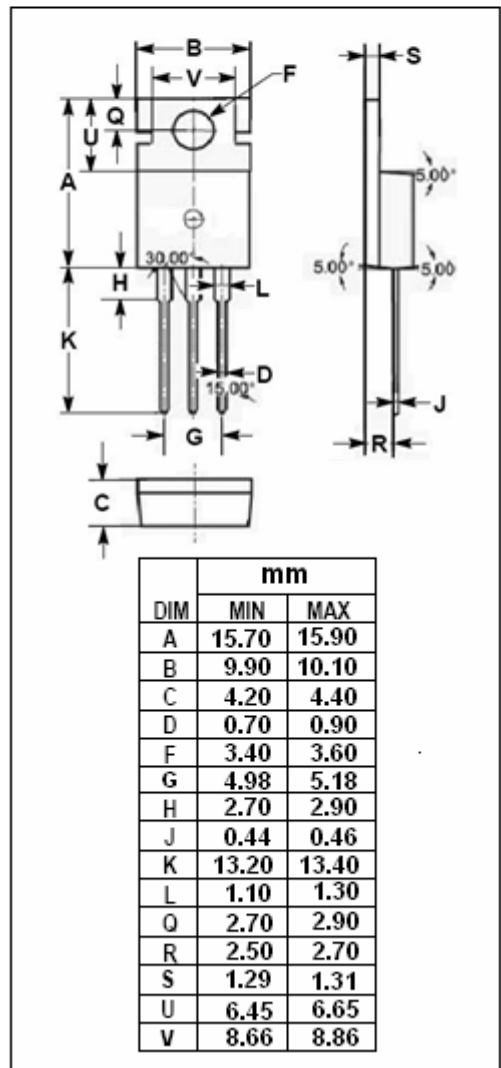
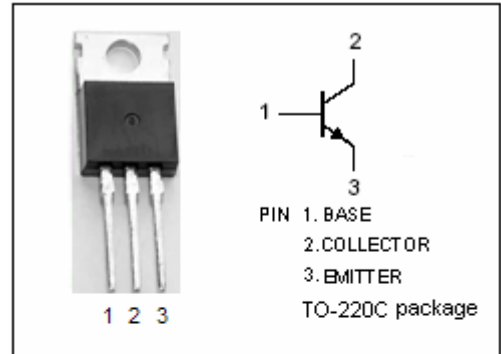
- Designed for high-voltage ,high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line operated switch-mode applications.  
Typical applications:
- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CEV}$	Collector-Emitter Voltage	1200	V
$V_{CEO(SUS)}$	Collector-Emitter Voltage	700	V
$V_{EBO}$	Emitter-Base Voltage	8	V
$I_C$	Collector Current-Continuous	2.5	A
$I_{CM}$	Collector Current-Peak	5	A
$I_B$	Base Current-Continuous	2	A
$I_{BM}$	Base Current-Peak	4	A
$P_C$	Collector Power Dissipation@ $T_C=25^\circ\text{C}$	65	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	1.54	$^\circ\text{C/W}$



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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=100\text{mA}; I_B=0$	700			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=1\text{A}; I_B=0.33\text{A}$ $I_C=1\text{A}; I_B=0.33\text{A}, T_C=100^{\circ}\text{C}$			2.0 3.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=2.5\text{A}; I_B=1\text{A}$			5.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=1\text{A}; I_B=0.33\text{A}$ $I_C=1\text{A}; I_B=0.33\text{A}, T_C=100^{\circ}\text{C}$			1.5 1.5	V
$I_{CEV}$	Collector Cutoff Current	$V_{CEV}=1200\text{V}; V_{BE(off)}=1.5\text{V}$ $V_{CEV}=1200\text{V}; V_{BE(off)}=1.5\text{V}; T_C=100^{\circ}\text{C}$			0.25 5.0	mA
$I_{CER}$	Collector Cutoff Current	$V_{CE}=1200\text{V}; R_{BE}=50\ \Omega, T_C=100^{\circ}\text{C}$			5.0	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=7\text{V}; I_C=0$			1.0	mA
$h_{FE}$	DC Current Gain	$I_C=0.5\text{A}; V_{CE}=5\text{V}$	7.5			
$C_{OB}$	Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f_{test}=1.0\text{kHz}$	50		250	pF

Switching times;Resistive Load

$t_d$	Delay Time	$I_C=1\text{A}, V_{CC}=500\text{V}, V_{BE(off)}=5\text{V}$ $I_{B1}=0.33\text{A}; t_p=50\ \mu\text{s}$ Duty Cycle $\leq 2.0\%$		45	200	ns
$t_r$	Rise Time			200	2000	ns
$t_s$	Storage Time			1000	4000	ns
$t_f$	Fall Time			500	2000	ns