

isc Silicon NPN Power Transistor

MJ16002A

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 500V(\text{Min})$
- High Switching Speed

APPLICATIONS

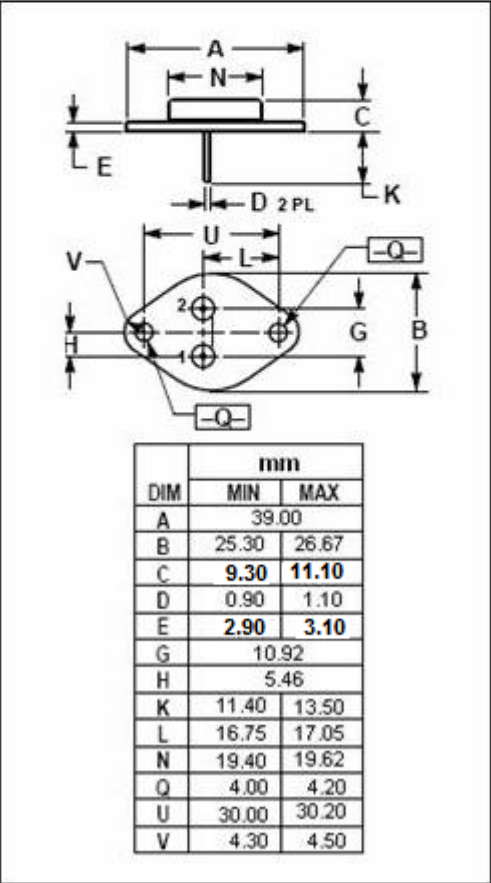
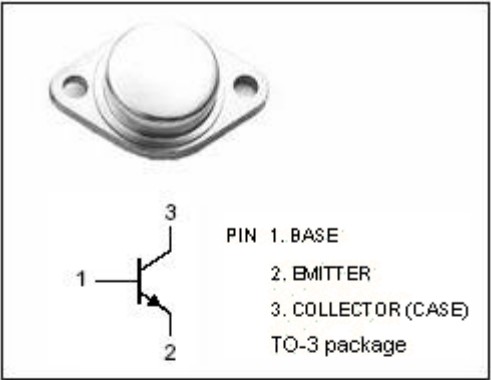
- Designed for high-voltage ,high-speed, power switching in inductive circuits where fall time is critical. They are particularly suited for line-operated switchmode applications.
- Switching regulators
- Inverters
- Solenoid and relay drivers
- Motor controls
- Deflection circuits

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CEV}	Collector-Emitter Voltage	1000	V
$V_{CEO(SUS)}$	Collector-Emitter Voltage	500	V
V_{EBO}	Emitter-Base Voltage	6	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@ $T_C=25^{\circ}\text{C}$	125	W
T_J	Junction Temperature	200	$^{\circ}\text{C}$
T_{stg}	Storage Temperature	-65~200	$^{\circ}\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance,Junction to Case	1.4	$^{\circ}\text{C/W}$



isc Silicon NPN Power Transistor**MJ16002A****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	$I_C=100\text{mA}$; $I_B=0$	500			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=1.5\text{A}$; $I_B=0.2\text{A}$			1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}$; $I_B=0.4\text{A}$ $I_C=3\text{A}$; $I_B=0.4\text{A}$, $T_C=100^{\circ}\text{C}$			2.5 2.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=3\text{A}$; $I_B=0.4\text{A}$ $I_C=3\text{A}$; $I_B=0.4\text{A}$, $T_C=100^{\circ}\text{C}$			1.5 1.5	V
I_{CEV}	Collector Cutoff Current	$V_{CEV}=1000\text{V}$; $V_{BE(off)}=1.5\text{V}$ $V_{CEV}=1000\text{V}$; $V_{BE(off)}=1.5\text{V}$; $T_C=100^{\circ}\text{C}$			0.25 1.5	mA
I_{CER}	Collector Cutoff Current	$V_{CE}=850\text{V}$; $R_{BE}=50\Omega$, $T_C=100^{\circ}\text{C}$			2.5	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=6\text{V}$; $I_C=0$			1.0	mA
h_{FE}	DC Current Gain	$I_C=5\text{A}$; $V_{CE}=5\text{V}$	5			
C_{OB}	Output Capacitance	$I_E=0$; $V_{CB}=10\text{V}$; $f_{test}=1.0\text{kHz}$			200	pF

Switching times;Resistive Load

t_d	Delay Time	$I_C=3\text{A}$, $V_{CC}=250\text{V}$; $R_{B2}=8\Omega$; $I_{B1}=0.4\text{A}$; $I_{B2}=0.8\text{A}$; $PW=30\mu\text{s}$; Duty Cycle $\leq 2.0\%$		30	100	ns
t_r	Rise Time			100	300	ns
t_s	Storage Time			1000	3000	ns
t_f	Fall Time			60	300	ns