

Silicon NPN Darlington Power Transistor

MJ10002

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 350V$ (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 as:

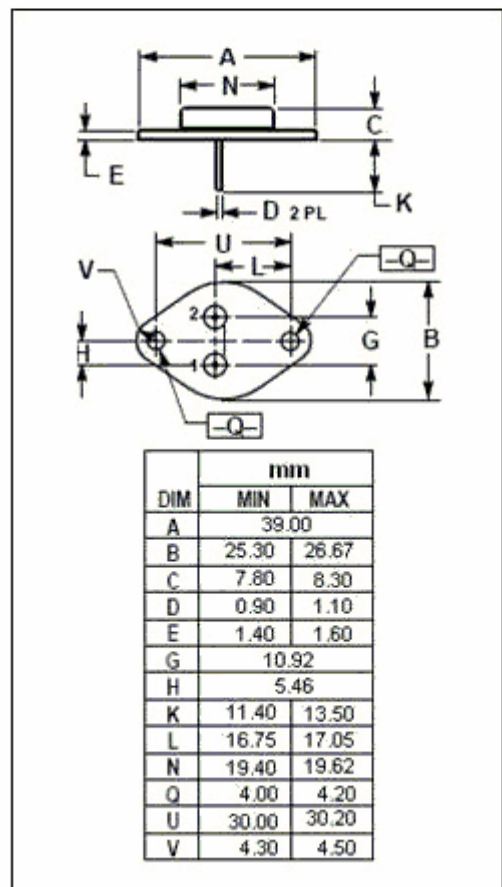
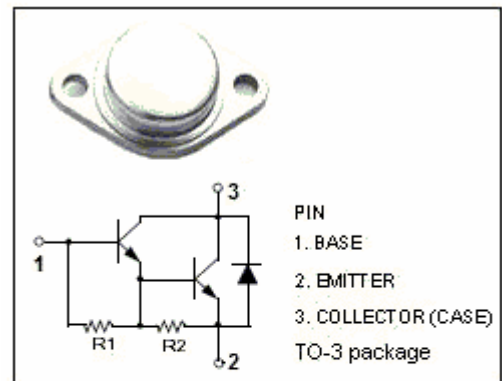
- Switching Regulators
- Inverters
- Solenoid and Relay Drivers
- Motor Controls
- Deflection Circuits

ABSOLUTE MAXIMUM RATINGS ($T_a=25$)

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Voltage	350	V
$V_{CEX(SUS)}$	Collector-Emitter Voltage	400	V
V_{CEV}	Collector-Emitter Voltage	450	V
V_{EBO}	Emitter-Base Voltage	8	V
I_C	Collector Current-Continuous	10	A
I_{CM}	Collector Current-Peak	20	A
I_B	Base Current-Continuous	2.5	A
I_{BM}	Base Current-Peak	5.0	A
P_C	Collector Power Dissipation @ $T_C=25$	150	W
T_j	Junction Temperature	200	
T_{stg}	Storage Temperature Range	-65~200	

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.17	/W



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ELECTRICAL CHARACTERISTICS

 $T_C=25$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=0.25A; I_B=0$	350			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=5A; I_B=0.25A$ $I_C=5A; I_B=0.25A, T_C=100$			1.9 2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=10A; I_B=1A$			2.9	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=5A; I_B=0.25A$ $I_C=5A; I_B=0.25A, T_C=100$			2.5 2.5	V
I_{CEV}	Collector Cutoff Current	$V_{CE}=450V; V_{BE(off)}=1.5V$ $V_{CE}=450V; V_{BE(off)}=1.5V; T_C=150$			0.25 5.0	mA
I_{CER}	Collector Cutoff Current	$V_{CE}=450V; R_{BE}=50; T_C=100$			5.0	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=8V; I_C=0$			175	mA
h_{FE-1}	DC Current Gain	$I_C=2.5A, V_{CE}=5V$	40			
h_{FE-2}	DC Current Gain	$I_C=5A, V_{CE}=5V$	30			
V_{ECF}	C-E Diode Forward Voltage	$I_F=5A$			5.0	V
C_{OB}	Output Capacitance	$I_E=0, V_{CB}=50V; f_{test}=0.1MHz$	60		275	pF

Switching Times; Resistive Load

t_d	Delay Time	$V_{CC}=250V; I_C=5A; I_{B1}=0.25A$ $V_{BE(off)}=5V$ $t_p=50\mu s, \text{Duty Cycle } 2\%$		0.05	0.2	μs
t_r	Rise Time			0.25	0.6	μs
t_s	Storage Time			1.2	3.0	μs
t_f	Fall Time			0.6	1.5	μs