isc Silicon NPN Darlington Power Transistor MJ10003

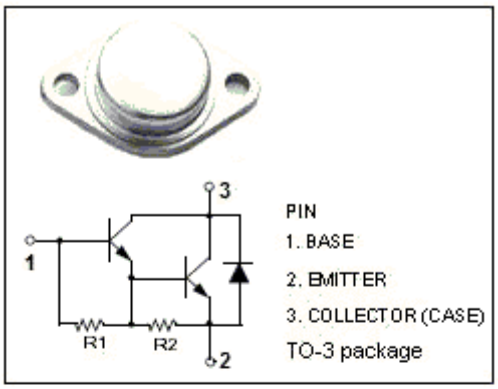
DESCRIPTION

- Collector-Emitter Sustaining Voltage-
  : $V_{CEO(SUS)}$= 400V (Min.)
- High Switching Speed

APPLICATIONS

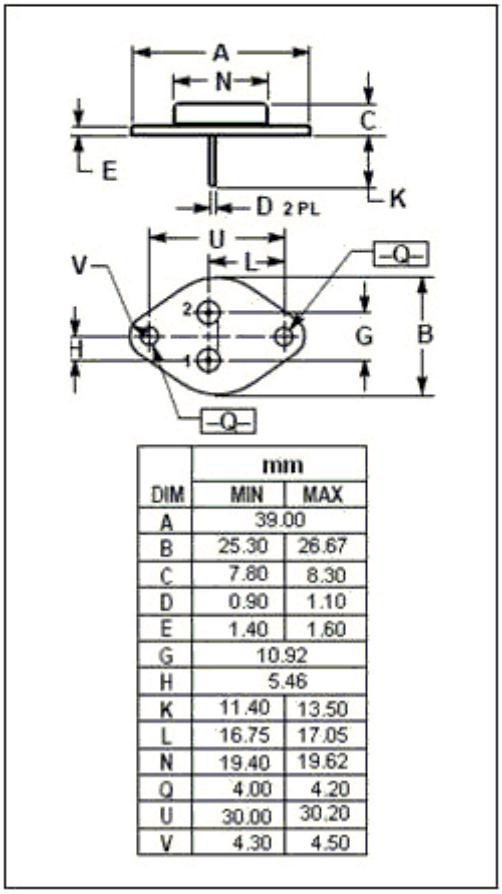
Designed for high voltage, high speed , power switching in Inductive circuits where fall time is critical. They are particularly suited for line operated switch-mode applications as:

- 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	400	V
$V_{CEX(SUS)}$	Collector-Emitter Voltage	450	V
V_{CEV}	Collector-Emitter Voltage	500	V
V_{EBO}	Emitter-Base Voltage	8	V
I_C	Collector Current-Continunous	10	A
I_{CM}	Collector Current-Peak	20	A
I_B	Base Current-Continunous	2.5	A
P_C	Collector Power Dissipation @T_C=25℃	150	W
T_j	Junction Temperature	200	℃
T_{stg}	Storage Temperature Range	-65~200	℃



DIM	mm MIN	MAX
A	39.00	
B	25.30	26.67
C	7.80	8.30
D	0.90	1.10
E	1.40	1.60
G	10.92	
H	5.46	
K	11.40	13.50
L	16.75	17.05
N	19.40	19.62
Q	4.00	4.20
U	30.00	30.20
V	4.30	4.50

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j\text{-}c}$	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}=500V;$V_{BE(off)}$=1.5V V_{CE}=500V;$V_{BE(off)}$=1.5V;T_C=100℃			0.25 5.0	mA
I_{CER}	Collector Cutoff Current	V_{CE}=500V; R_{BE}= 50Ω; 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		500	
h_{FE-2}	DC Current Gain	I_C= 5A, V_{CE}= 5V	30		300	
V_{ECF}	C-E Diode Forward Voltage	I_F= 5A			5.0	V
C_{OB}	Output Capacitance	I_E= 0, V_{CB}= 10V; f= 0.1MHz	60			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= 50μs, Duty Cycle≤2%			0.2	μs
t_r	Rise Time				0.6	μs
t_s	Storage Time				3.0	μs
t_f	Fall Time				1.5	μs