

isc Silicon NPN Darlington Power Transistor

MJ10012T

DESCRIPTION

- Collector-Emitter Sustaining Voltage-
 $V_{CEO(SUS)} = 400V(\text{Min})$
- High Power Dissipation
- DARLINGTON
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

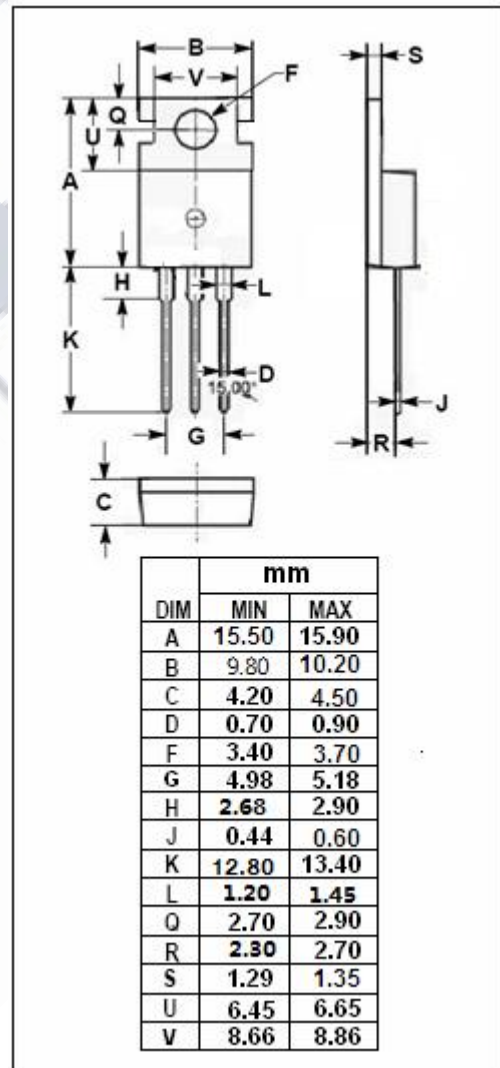
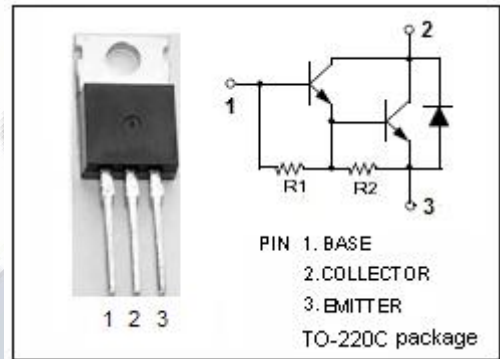
- Automotive ignition
- Switching regulator
- Motor control applications

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	600	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	8	V
I_C	Collector Current-Continuous	10	A
I_{CM}	Collector Current-peak	15	A
I_B	Base Current	2	A
P_C	Collector Power Dissipation @ $T_c = 25^\circ\text{C}$	65	W
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.9	$^\circ\text{C/W}$



isc Silicon NPN Darlington Power Transistor**MJ10012T****ELECTRICAL CHARACTERISTICS****T_j=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V _{CE0(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 30mA ; I _B = 0	400			V
V _{CE(sat)-1}	Collector-Emitter Saturation Voltage	I _C = 3A; I _B = 0.6A			1.5	V
V _{CE(sat)-2}	Collector-Emitter Saturation Voltage	I _C = 6A; I _B = 0.6A			2.0	V
V _{CE(sat)-3}	Collector-Emitter Saturation Voltage	I _C = 10A; I _B = 2A			2.5	V
V _{BE(sat)-1}	Base-Emitter Saturation Voltage	I _C = 6A; I _B = 0.6A			2.5	V
V _{BE(sat)-2}	Base-Emitter Saturation Voltage	I _C = 10A; I _B = 2A			3.0	V
V _{BE(on)}	Base-Emitter On Voltage	I _C = 10A ; V _{CE} = 6V			2.8	V
I _{CBO}	Collector Cutoff Current	V _{CB} = 600V; I _E = 0			1	mA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 6V; I _C = 0			40	mA
h _{FE-1}	DC Current Gain	I _C = 3A ; V _{CE} = 6V	300			
h _{FE-2}	DC Current Gain	I _C = 6A ; V _{CE} = 6V	100		2000	
h _{FE-3}	DC Current Gain	I _C = 10A ; V _{CE} = 6V	20			
V _{ECF}	C-E Diode Forward Voltage	I _F = 10A			3.5	V
C _{OB}	Output Capacitance	V _{CB} = 10V, I _E = 0; f _{test} = 100kHz			350	pF

Switching Times

t _s	Storage Time	V _{CC} =12V; I _C =6A ; I _{B1} = I _{B2} = 0.3A			15	μs
t _f	Fall Time				15	μs