

# isc Silicon NPN Darlington Power Transistor

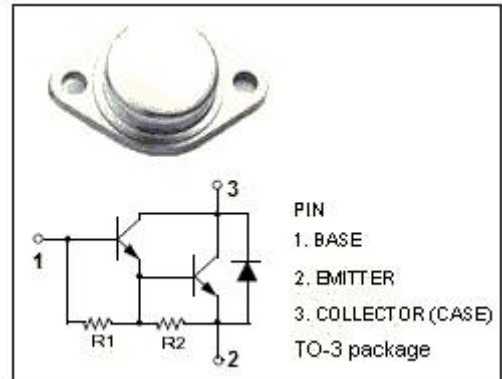
MJ11022

## DESCRIPTION

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 250V$  (Min.)
- High DC Current Gain-  
:  $h_{FE} = 400$ (Min.)@ $I_C = 10A$
- Low Collector Saturation Voltage-  
:  $V_{CE(sat)} = 1.0V$ (Max.)@  $I_C = 5.0A$
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

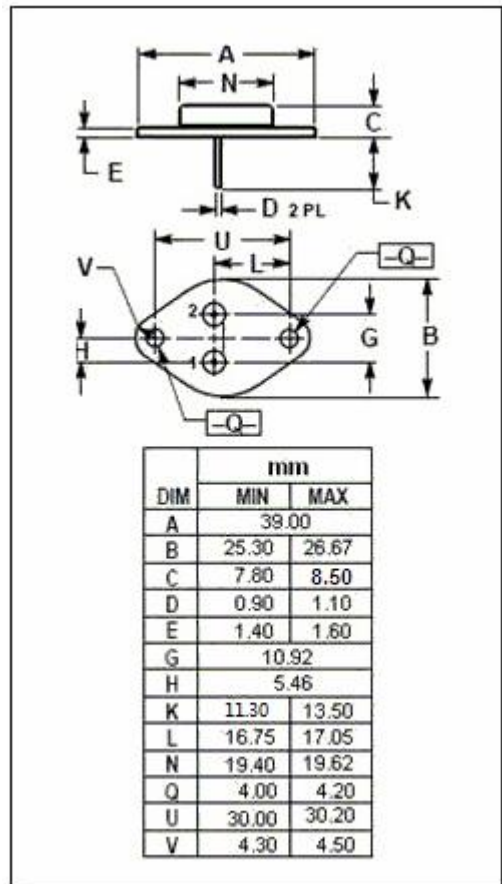
## APPLICATIONS

- Designed for general purpose amplifiers, low frequency switching and motor control applications.



## ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	250	V
$V_{CEO}$	Collector-Emitter Voltage	250	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	15	A
$I_{CM}$	Collector Current-Peak	30	A
$I_B$	Base Current-Continuous	0.5	A
$P_C$	Collector Power Dissipation @ $T_c = 25^\circ C$	175	W
$T_j$	Junction Temperature	175	$^\circ C$
$T_{stg}$	Storage Temperature Range	-65~200	$^\circ C$



## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	0.86	$^\circ C/W$

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## ELECTRICAL CHARACTERISTICS

T<sub>c</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 50mA; I <sub>B</sub> = 0	250			V
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 10A; I <sub>B</sub> = 0.1A			2.0	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 15A; I <sub>B</sub> = 0.15A			3.4	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 15A; I <sub>B</sub> = 0.15A			3.8	V
V <sub>BE(on)</sub>	Base-Emitter On Voltage	I <sub>C</sub> = 10A, V <sub>CE</sub> = 5V			2.8	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> =250V; I <sub>E</sub> =0 V <sub>CB</sub> =250V; I <sub>E</sub> =0; T <sub>C</sub> =150°C			0.5 5.0	mA
I <sub>CEO</sub>	Collector Cutoff Current	V <sub>CE</sub> = 125V; I <sub>B</sub> = 0			1.0	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5V; I <sub>C</sub> = 0			2.0	mA
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 10A, V <sub>CE</sub> = 5V	400		15000	
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 15A, V <sub>CE</sub> = 5V	100			
C <sub>OB</sub>	Output Capacitance	I <sub>E</sub> = 0, V <sub>CB</sub> = 10V; f <sub>test</sub> = 0.1MHz			400	pF

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