

INCHANGE Semiconductor

ISC Product Specification

isc Silicon PNP Darlington Power Transistor

MJ11019

DESCRIPTION

- High DC Current Gain-
: $h_{FE} = 400(\text{Min}) @ I_C = -10\text{A}$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(\text{SUS})} = -200\text{V}(\text{Min})$
- Low Collector-Emitter Saturation Voltage-
: $V_{CE(\text{sat})} = -2.0\text{V}(\text{Max}) @ I_C = -10\text{A}$
= $-3.4\text{V}(\text{Max}) @ I_C = -15\text{A}$
- Complement to Type MJ11020

APPLICATIONS

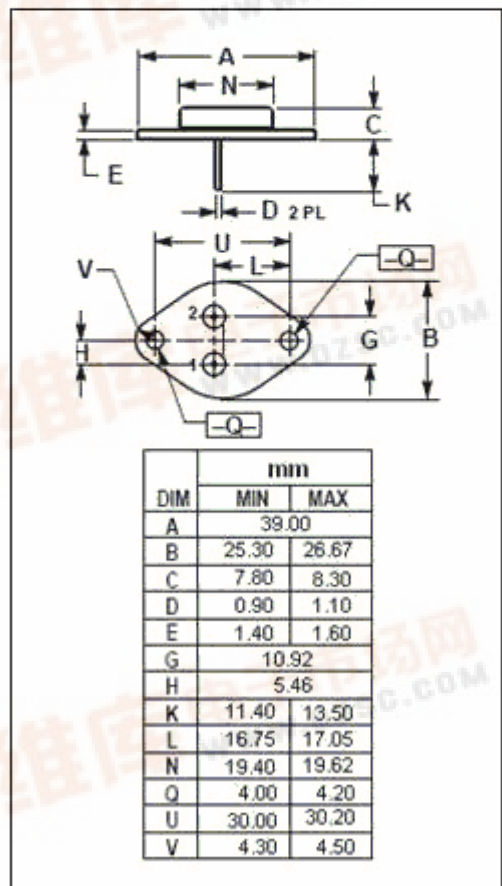
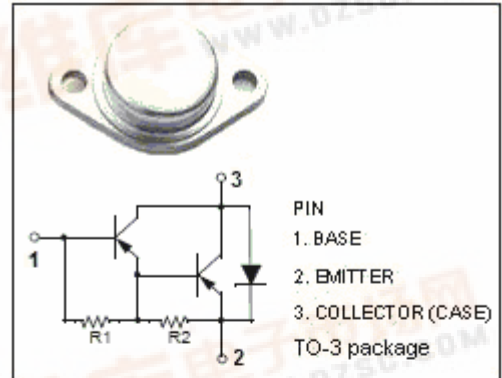
- Designed for general purpose amplifiers ,low frequency switching and motor control applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	-200	V
V_{CEO}	Collector-Emitter Voltage	-200	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 @ $T_C = 25^\circ\text{C}$	175	W
T_j	Junction Temperature	175	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65~200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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



isc Silicon PNP Darlington Power Transistor**MJ11019****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	$I_C = -100\text{mA}$, $I_B = 0$	-200			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C = -10\text{A}$, $I_B = -0.1\text{A}$			-2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C = -15\text{A}$, $I_B = -0.15\text{A}$			-3.4	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -15\text{A}$, $I_B = -0.15\text{A}$			-3.8	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = -10\text{A}$; $V_{CE} = -5\text{V}$			-2.8	V
I_{CEV}	Collector Cutoff Current	$V_{CEV}=200\text{V}$; $V_{BE(off)}=1.5\text{V}$ $V_{CEV}=200\text{V}$; $V_{BE(off)}=1.5\text{V}$; $T_C=150^{\circ}\text{C}$			-0.5 -5.0	mA
I_{CEO}	Collector Cutoff Current	$V_{CE} = -100\text{V}$, $I_B=0$			-1	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = -5\text{V}$; $I_C=0$			-2	mA
h_{FE-1}	DC Current Gain	$I_C = -10\text{A}$; $V_{CE} = -5\text{V}$	400		15000	
h_{FE-2}	DC Current Gain	$I_C = -15\text{A}$; $V_{CE} = -5\text{V}$	100			
C_{OB}	Output Capacitance	$I_E = 0$; $V_{CB} = -10\text{V}$, $f = 0.1\text{MHz}$			600	pF

Switching times

t_d	Delay Time	$I_C = -10\text{A}$, $V_{CC} = -100\text{V}$; $I_{B1} = -0.1\text{A}$; $V_{BE(off)} = -5\text{V}$; Duty Cycle $\leq 1.0\%$		75		ns
t_r	Rise Time			0.5		μs
t_s	Storage Time			2.7		μs
t_f	Fall Time			2.5		μs