

isc Silicon NPN Darlington Power Transistor

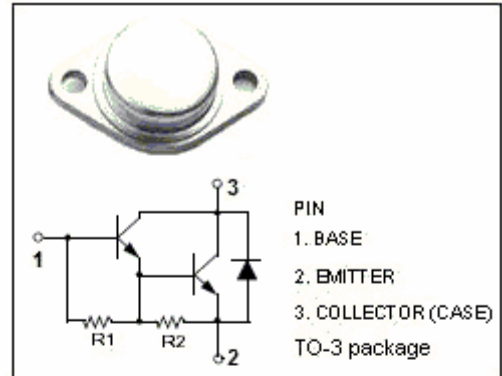
MJ1001

DESCRIPTION

- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 80V(\text{Min.})$
- High DC Current Gain-  
:  $h_{FE} = 1000(\text{Min.}) @ I_C = 3A$
- Low Collector Saturation Voltage-  
:  $V_{CE(sat)} = 2.0V(\text{Max.}) @ I_C = 3A$

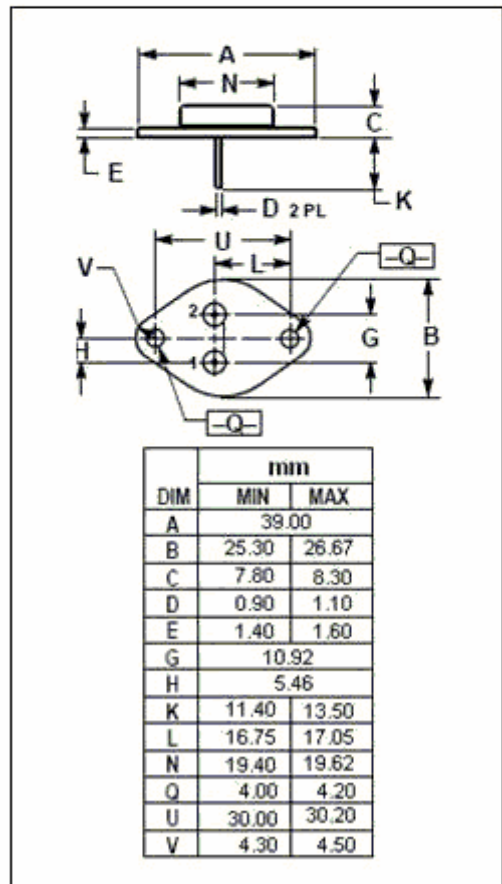
APPLICATIONS

- Designed for use as output devices in complementary general purpose amplifier applications.



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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	80	V
$V_{CEO}$	Collector-Emitter Voltage	80	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	10	A
$I_B$	Base Current-Continuous	0.1	A
$P_C$	Collector Power Dissipation @ $T_C=25^{\circ}C$	90	W
$T_j$	Junction Temperature	200	$^{\circ}C$
$T_{stg}$	Storage Temperature Range	-55~+200	$^{\circ}C$



THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.94	$^{\circ}C/W$

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## ELECTRICAL CHARACTERISTICS

 $T_C=25^{\circ}\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C=0.1\text{A}; I_B=0$	80			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=12\text{mA}$			2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=8\text{A}; I_B=40\text{mA}$			4.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=3\text{A}, V_{CE}=3\text{V}$			2.5	V
$I_{CER}$	Collector Cutoff Current	$V_{CE}=80\text{V}; R_{BE}=1\text{k}\Omega$ $V_{CE}=80\text{V}; R_{BE}=1\text{k}\Omega; T_C=150^{\circ}\text{C}$			1.0 5.0	mA
$I_{CEO}$	Collector Cutoff Current	$V_{CE}=40\text{V}; I_B=0$			0.5	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			2.0	mA
$h_{FE-1}$	DC Current Gain	$I_C=3\text{A}, V_{CE}=3\text{V}$	1000			
$h_{FE-2}$	DC Current Gain	$I_C=4\text{A}, V_{CE}=3\text{V}$	750			