

isc Silicon NPN Darlington Power Transistor

TIP102

DESCRIPTION

- High DC Current Gain-
: $h_{FE} = 1000(\text{Min}) @ I_C = 3A$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(\text{SUS})} = 100V(\text{Min})$
- Low Collector-Emitter Saturation Voltage-
: $V_{CE(\text{sat})} = 2.0V(\text{Max}) @ I_C = 3A$
= $2.5V(\text{Max}) @ I_C = 8A$
- Complement to Type TIP107
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

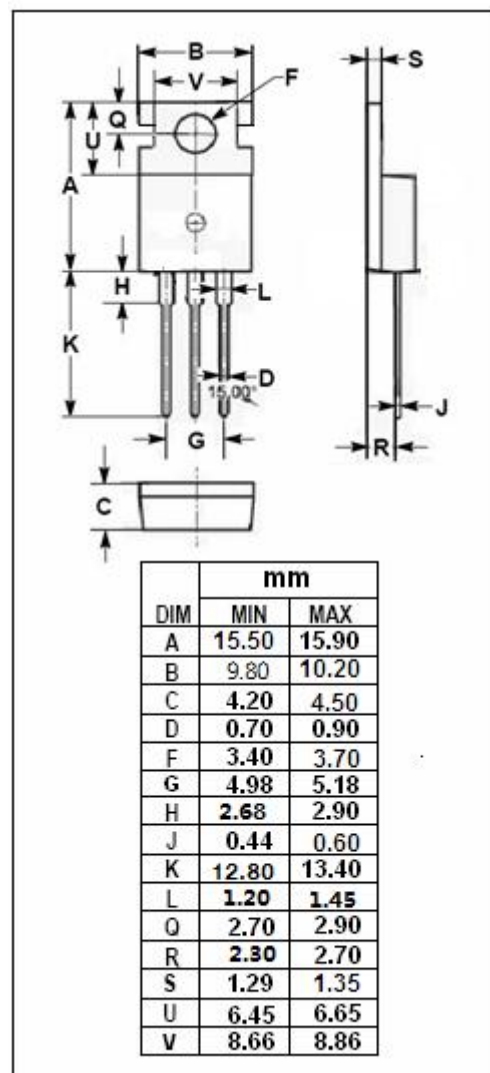
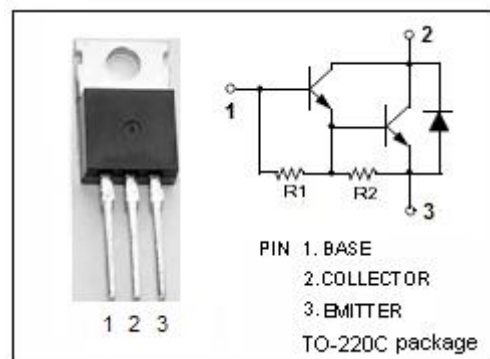
- Designed for general-purpose amplifier and low-speed switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	100	V
V_{CEO}	Collector-Emitter Voltage	100	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	8	A
I_{CM}	Collector Current-Peak	15	A
I_B	Base Current- Continuous	1	A
P_C	Collector Power Dissipation @ $T_c = 25^\circ\text{C}$	80	W
	Collector Power Dissipation @ $T_a = 25^\circ\text{C}$	2	
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	1.56	$^\circ\text{C/W}$
$R_{th j-a}$	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C/W}$



isc Silicon NPN Darlington Power Transistor**TIP102****ELECTRICAL CHARACTERISTICS****T_c=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V _{CEQ(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 30mA, I _B = 0	100		V
V _{CE(sat)-1}	Collector-Emitter Saturation Voltage	I _C = 3A ,I _B = 6mA		2.0	V
V _{CE(sat)-2}	Collector-Emitter Saturation Voltage	I _C = 8A ,I _B = 80mA		2.5	V
V _{BE(on)}	Base-Emitter On Voltage	I _C = 8A ; V _{CE} = 4V		2.8	V
I _{CBO}	Collector Cutoff Current	V _{CB} = 100V, I _E = 0		50	μ A
I _{CEO}	Collector Cutoff Current	V _{CE} = 50V, I _B = 0		50	μ A
I _{EBO}	Emitter Cutoff Current	V _{EB} = 5V; I _C = 0		2	mA
h _{FE-1}	DC Current Gain	I _C = 3A ; V _{CE} = 4V	1000	20000	
h _{FE-2}	DC Current Gain	I _C = 8A ; V _{CE} = 4V	200		
C _{OB}	Output Capacitance	I _E = 0 ; V _{CB} = 10V,f= 0.1MHz		300	pF

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