

isc Silicon NPN Darlington Power Transistor

TIP142T

DESCRIPTION

- High DC Current Gain-
: $h_{FE} = 1000(\text{Min}) @ I_C = 5A$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(\text{SUS})} = 100V(\text{Min})$
- Complement to Type TIP147T
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

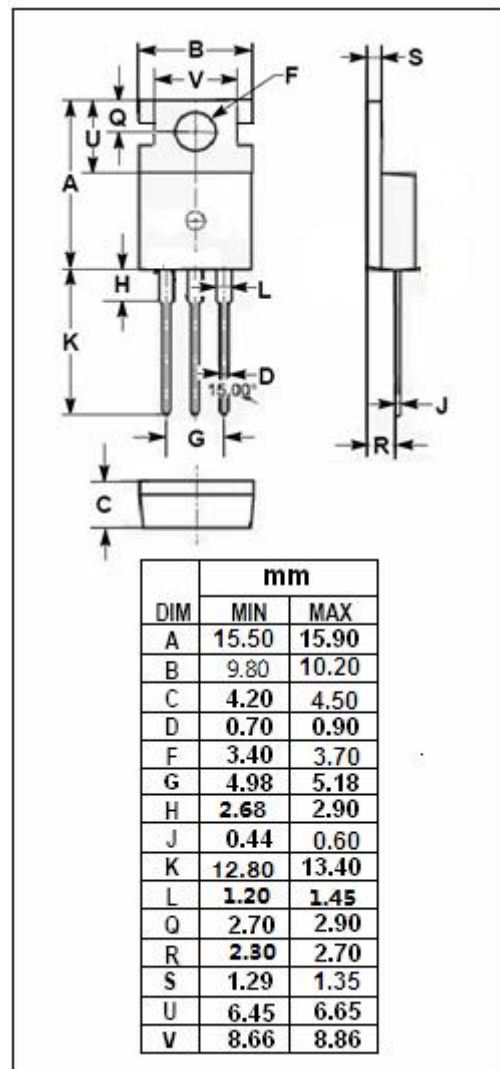
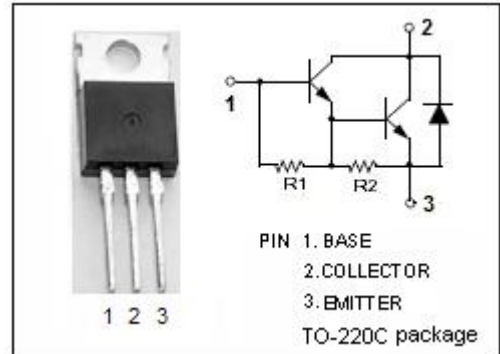
- Designed for general purpose amplifier and low speed switching applications.

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	10	A
I_{CM}	Collector Current-Peak	15	A
I_B	Base Current- Continuous	0.5	A
P_C	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	80	W
T_j	Junction Temperature	150	$^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55~150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.56	$^\circ\text{C/W}$



isc Silicon NPN Darlington Power Transistor**TIP142T****ELECTRICAL CHARACTERISTICS****T_C=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CEO(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 30mA, I _B = 0	100			V
V _{CE(sat)-1}	Collector-Emitter Saturation Voltage	I _C = 5A, I _B = 10mA			2.0	V
V _{CE(sat)-2}	Collector-Emitter Saturation Voltage	I _C = 10A, I _B = 40mA			3.0	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C = 10A, I _B = 40mA			3.5	V
V _{BE(on)}	Base-Emitter On Voltage	I _C = 10A ; V _{CE} = 4V			3.0	V
I _{CBO}	Collector Cutoff current	V _{CB} = 100V, I _E = 0			1	mA
I _{CEO}	Collector Cutoff current	V _{CE} = 50V, I _B = 0			2	mA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 5V; I _C = 0			2	mA
h _{FE-1}	DC Current Gain	I _C = 5A ; V _{CE} = 4V	1000			
h _{FE-2}	DC Current Gain	I _C = 10A ; V _{CE} = 4V	500			

Switching Times

t _d	Delay Time	V _{CC} = 30 V, I _C = 5.0 A, I _{B1} = -I _{B2} = 20 mA; t _p = 20 μs Duty Cycle ≤ 20%		0.15		μs
t _r	Rise Time			0.55		μs
t _{stg}	Storage Time			2.5		μs
t _f	Fall Time			2.5		μs

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TIP142T**NOTICE:**

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