

**Silicon PNP Darlington Power Transistor**

**TIP146T**

**DESCRIPTION**

- High DC Current Gain-  
:  $h_{FE} = 1000(\text{Min}) @ I_C = -5A$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CE0(\text{SUS})} = -80V(\text{Min})$
- Complement to Type TIP141T

**APPLICATIONS**

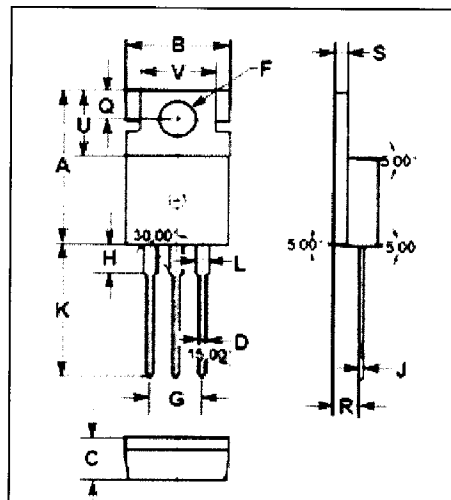
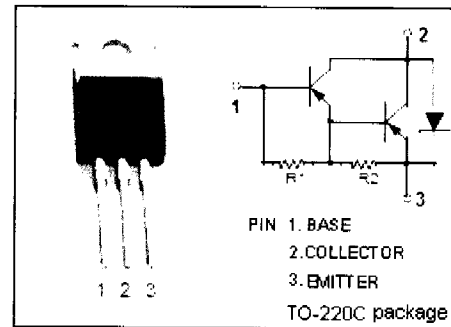
- Designed for general purpose amplifier and low frequency switching applications.

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

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
$I_{CM}$	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	$^\circ\text{C/W}$



DIM	mm	
	MIN	MAX
A	15.70	15.90
B	9.90	10.10
C	4.20	4.40
D	0.70	0.90
F	3.40	3.60
G	4.98	5.18
H	2.70	2.90
J	0.44	0.46
K	13.20	13.40
L	1.10	1.30
Q	2.70	2.90
R	2.50	2.70
S	1.29	1.31
U	6.45	6.65
V	8.66	8.86



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# TIP146T

## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CE0(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C = -30\text{mA}, I_B = 0$	-80			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C = -5\text{A}, I_B = -10\text{mA}$			-2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C = -10\text{A}, I_B = -40\text{mA}$			-3.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -10\text{A}, I_B = -40\text{mA}$			-3.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = -10\text{A}; V_{CE} = -4\text{V}$			-3.0	V
$I_{CBO}$	Collector Cutoff current	$V_{CB} = -80\text{V}, I_E = 0$			-1	mA
$I_{CEO}$	Collector Cutoff current	$V_{CE} = -40\text{V}, I_B = 0$			-2	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = -5\text{V}; I_C = 0$			-2	mA
$h_{FE-1}$	DC Current Gain	$I_C = -5\text{A}; V_{CE} = -4\text{V}$	1000			
$h_{FE-2}$	DC Current Gain	$I_C = -10\text{A}; V_{CE} = -4\text{V}$	500			

### Switching Times

$t_d$	Delay Time	$V_{CC} = -30\text{V}, I_C = -5.0\text{A},$ $I_{B1} = -I_{B2} = -20\text{mA};$ $t_p = 20\mu\text{s}$ Duty Cycle $\leq 20\%$		0.15		$\mu\text{s}$
$t_r$	Rise Time			0.55		$\mu\text{s}$
$t_{stg}$	Storage Time			2.5		$\mu\text{s}$
$t_f$	Fall Time			2.5		$\mu\text{s}$