

**Silicon PNP Darlington Power Transistor**

**TIP147T**

**DESCRIPTION**

- High DC Current Gain-  
 :  $h_{FE} = 1000(\text{Min}) @ I_C = -5A$
- Collector-Emitter Sustaining Voltage-  
 :  $V_{CE0(\text{SUS})} = -100V(\text{Min})$
- Complement to Type TIP142T

**APPLICATIONS**

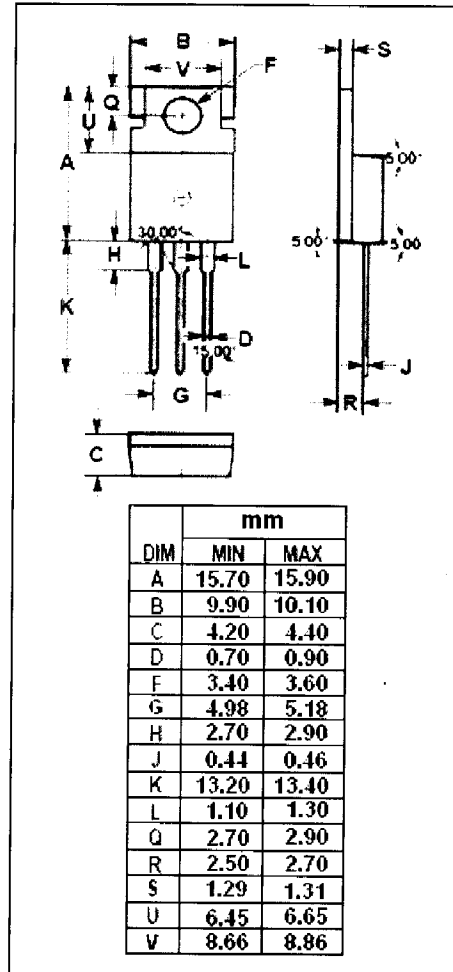
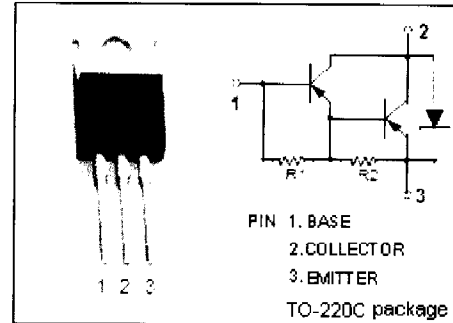
- Designed for general purpose amplifier and low frequency switching applications.

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

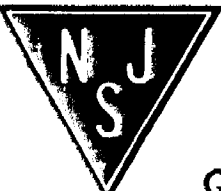
SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	-100	V
$V_{CEO}$	Collector-Emitter Voltage	-100	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current-Continuous	-10	A
$I_{CM}$	Collector Current-Peak	-15	A
$I_B$	Base Current- Continuous	-0.5	A
$P_C$	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	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	$^\circ\text{C/W}$



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



# Silicon PNP Darlington Power Transistor

# TIP147T

## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C = -30\text{mA}, I_B = 0$	-100			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	$V_{CB} = -100\text{V}, I_E = 0$			-1	mA
$I_{CEO}$	Collector Cutoff current	$V_{CE} = -50\text{V}, I_B = 0$			-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

Symbol	Parameter	Conditions	MIN	TYP.	MAX	UNIT
$t_d$	Delay Time	$V_{CC} = -30\text{V}, I_C = -5.0\text{A}, I_{B1} = -I_{B2} = -20\text{mA}; t_p = 20\mu\text{s}, \text{Duty Cycle} \leq 20\%$		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		$\mu\text{s}$