

**2N2151**

**5 Amp, 100V,  
 Planar, NPN  
 Power Transistors  
 JAN, JANTX**

**APPLICATIONS:**

- Fast Switching
- High Frequency Switching and Amplifying

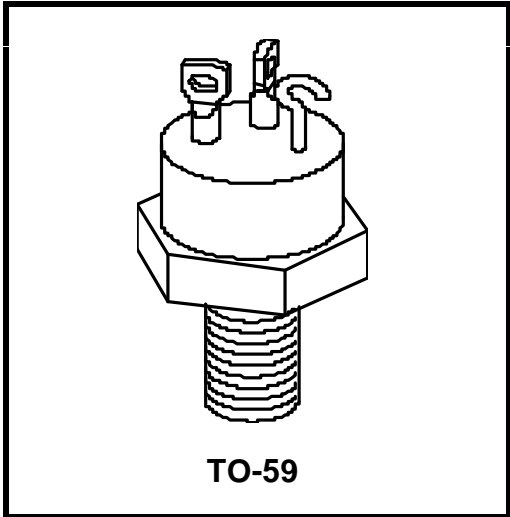
**FEATURES:**

- High Reliability
- Greater Gain Stability

**DESCRIPTION:**

These power transistors are produced by PPC's DOUBLE DIFFUSED PLANAR process. This technology produces high voltage devices with excellent switching speeds, frequency response, gain linearity, saturation voltages, high current gain, and safe operating areas. They are intended for use in Commercial, Industrial, and Military power switching, amplifier, and regulator applications.

Ultrasonically bonded leads and controlled die mount techniques are utilized to further increase the SOA capability and inherent reliability of these devices. The temperature range to 200°C permits reliable operation in high ambients, and the hermetically sealed package insures maximum reliability and long life.



**ABSOLUTE MAXIMUM RATINGS**

SYMBOL	CHARACTERISTIC	VALUE	UNITS
V <sub>CBO</sub> *	Collector-Base Voltage	150	V
V <sub>CEO</sub> *	Collector-Emitter Voltage	100	V
V <sub>EBO</sub> *	Emitter-Base Voltage	8	V
I <sub>C</sub> *	Peak Collector Current	10	A
I <sub>C</sub> *	Continuous Collector Current	5	A
I <sub>B</sub> *	Continuous Base Current	2	A
T <sub>STG</sub> *	Storage Temperature	-65 to 200	°C
T <sub>J</sub> *	Operating Junction Temperature	-65 to 200	°C
*	Lead Temperature 1/16" From Case for 10 Sec.	230	°C
P <sub>T</sub> *	Power Dissipation T <sub>A</sub> = 25°C T <sub>C</sub> = 100°C	2 30	W W
θ <sub>JC</sub>	Thermal Resistance Junction to Case	3.33	°C/W

\* Indicates JEDEC registered data.

**ELECTRICAL CHARACTERISTICS**  
**(25°C Case Temperature Unless Otherwise Noted)**

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	VALUE		Units
			Min.	Max	
$BV_{CBO}^*$	Collector-Base Voltage	$I_C = 100 \mu\text{A}$ , Cond. D	150	----	Vdc
$BV_{CEO}^*$	Collector-Emitter Voltage (Note 1)	$I_C = 50 \text{ mA}$ , Cond. D	100	----	Vdc
$BV_{EBO}^*$	Emitter-Base Voltage	$I_E = 2 \mu\text{A}$ , Cond. D	8	----	Vdc
$I_{CEO}^*$	Collector-Emitter Cutoff Current	$V_{CE} = 120 \text{ Vdc}$ Cond. D	----	5	$\mu\text{A}$
$I_{CEX}^*$	Collector-Emitter Cutoff Current	$V_{CE} = 120 \text{ Vdc}$ , $V_{EB} = 0.5 \text{ Vdc}$ , Cond. A $V_{CE} = 120 \text{ Vdc}$ , $V_{EB} = 0.5 \text{ Vdc}$ , Cond. A $T_A = 150^\circ\text{C}$	----	5 100	$\mu\text{A}$ <u><math>\mu\text{A}</math></u>
$I_{CBO}^*$	Collector-Base Cutoff Current	$V_{CB} = 120 \text{ Vdc}$ , Cond. D	----	5	$\mu\text{A}$
$h_{FE}^*$	DC Current Gain (Note 1)	$I_C = 1 \text{ A}$ , $V_{CE} = 5 \text{ Vdc}$ $I_C = 0.5 \text{ A}$ , $V_{CE} = 5 \text{ Vdc}$ $I_C = 0.1 \text{ A}$ , $V_{CE} = 5 \text{ Vdc}$	40 40 40	120 120 ----	---- ---- ----
$h_{FE}^*$	AC Current Gain	$I_C = 0.1 \text{ A}$ , $V_{CE} = 30 \text{ Vdc}$ , $f = 1 \text{ KHz}$	40	160	----
$V_{CE(sat)}^*$	Collector Saturation Voltage (Note 1)	$I_C = 1 \text{ A}$ , $I_B = 0.1 \text{ A}$	----	1.0	Vdc
$V_{BE(sat)}^*$	Base Saturation Voltage (Note 1)	$I_C = 1 \text{ A}$ , $I_B = 0.1 \text{ A}$	----	1.2	Vdc
$V_{BE(on)}^*$	Base On-Voltage (Note 1)	$I_C = 1 \text{ A}$ , $V_{CE} = 2 \text{ Vdc}$	----	1.2	Vdc
$f_T^*$	Gain-Bandwidth Product	$I_C = 1 \text{ A}$ , $V_{CE} = 30 \text{ Vdc}$ , $f = 10 \text{ MHz}$	10	70	MHz
$C_{ob}^*$	Output Capacitance	$V_{CB} = 20 \text{ Vdc}$ , $I_E = 0$ , $f = 1 \text{ MHz}$	----	160	pf

Note 1: Pulse Test: PW = 300 $\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

\* Indicates JEDEC registered data.

**PACKAGE MECHANICAL DATA**

