

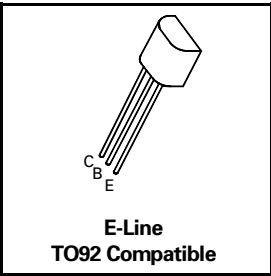
# NPN SILICON PLANAR MEDIUM POWER DARLINGTON TRANSISTORS

**ZTX600**  
**ZTX601**

**ISSUE 2 – JUNE 94**

**FEATURES**

- \* 160 Volt  $V_{CE0}$
- \* 1 Amp continuous current
- \* Gain of 5K at  $I_C=1$  Amp
- \*  $P_{tot} = 1$  Watt



**ABSOLUTE MAXIMUM RATINGS.**

PARAMETER	SYMBOL	ZTX600	ZTX601	UNIT
Collector-Base Voltage	$V_{CBO}$	160	180	V
Collector-Emitter Voltage	$V_{CEO}$	140	160	V
Emitter-Base Voltage	$V_{EBO}$	10		V
Peak Pulse Current	$I_{CM}$	4		A
Continuous Collector Current	$I_C$	1		A
Power Dissipation at $T_{amb}=25^{\circ}C$ derate above $25^{\circ}C$	$P_{tot}$	1 5.7		W mW/°C
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200		°C

**ELECTRICAL CHARACTERISTICS (at  $T_{amb} = 25^{\circ}C$  unless otherwise stated).**

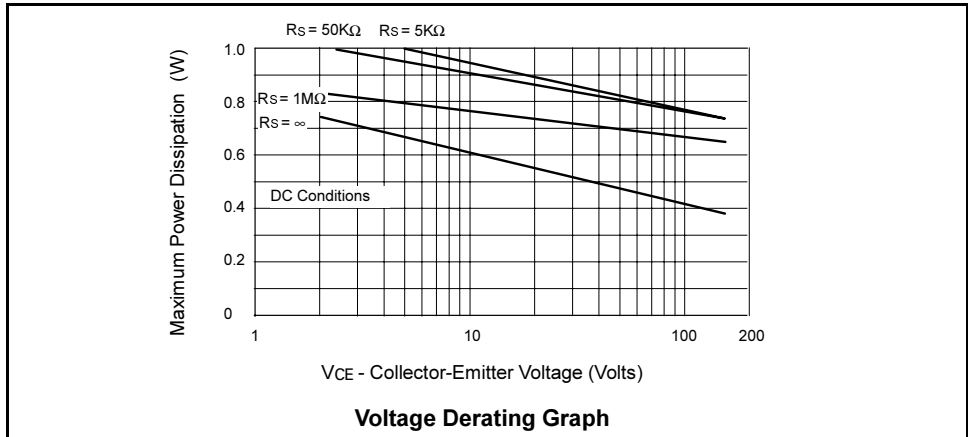
PARAMETER	SYMBOL	ZTX600			ZTX601			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	160			180			V	$I_C=100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	140			160			V	$I_C=10mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	10			10			V	$I_E=100\mu A$
Collector Cut-Off Current	$I_{CBO}$			0.01 10			0.01 10	$\mu A$ $\mu A$ $\mu A$ $\mu A$	$V_{CB}=140V$ $V_{CB}=160V$ $V_{CB}=140V, T_a=100^{\circ}C$ $V_{CB}=160V, T_a=100^{\circ}C$
Emitter Cut-Off Current	$I_{EBO}$			0.1			0.1	$\mu A$	$V_{EB}=8V$
Collector-Emitter Cut-Off Current	$I_{CES}$			10			10	$\mu A$ $\mu A$	$V_{CES}=140V$ $V_{CES}=160V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.75 0.85	1.1 1.2		0.75 0.85	1.1 1.2	V V	$I_C=0.5A, I_B=5mA^*$ $I_C=1A, I_B=10mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		1.7	1.9		1.7	1.9	V	$I_C=1A, I_B=10mA^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		1.5	1.7		1.5	1.7	V	$I_C=1A, V_{CE}=5V^*$

# ZTX600 ZTX601

## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	ZTX600			ZTX601			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Static Forward Current Transfer Ratio	$h_{FE}$	1K 2K 1K		100K	1K 2K 1K		100K		$I_C=50\text{mA}, V_{CE}=10\text{V}^*$ $I_C=0.5\text{A}, V_{CE}=10\text{V}^*$ $I_C=1\text{A}, V_{CE}=10\text{V}^*$
	Group A	1K 2K 1K	2K 5K 3K	20K	1K 2K 1K	2K 5K 3K	20K		$I_C=50\text{mA}, V_{CE}=10\text{V}^*$ $I_C=0.5\text{A}, V_{CE}=10\text{V}^*$ $I_C=1\text{A}, V_{CE}=10\text{V}^*$
	Group B	5K 10K 5K	10K 20K 10K	100K	5K 10K 5K	10K 20K 10K	100K		$I_C=50\text{mA}, V_{CE}=10\text{V}^*$ $I_C=0.5\text{A}, V_{CE}=10\text{V}^*$ $I_C=1\text{A}, V_{CE}=10\text{V}^*$
Transition Frequency	$f_T$	150	250		150	250		MHz	$I_C=100\text{mA}, V_{CE}=10\text{V}, f=20\text{MHz}$
Input Capacitance	$C_{ibo}$		60	90		60	90	pF	$V_{EB}=0.5\text{V}, f=1\text{MHz}$
Output Capacitance	$C_{obo}$		10	15		10	15	pF	$V_{CE}=10\text{V}, f=1\text{MHz}$
Switching Times	$t_{on}$		0.75			0.75		$\mu\text{s}$	$I_C=0.5\text{A}, V_{CE}=10\text{V}$ $I_{B1}=I_{B2}=0.5\text{mA}$
	$t_{off}$		2.2			2.2		$\mu\text{s}$	

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$



The maximum permissible operational temperature can be obtained from this graph using the following equation

$$T_{amb(max)} = \frac{\text{Power(max)} - \text{Power(act)}}{0.0057} + 25^{\circ}\text{C}$$

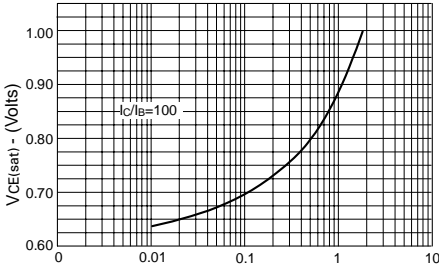
$T_{amb(max)}$  = Maximum operating ambient temperature

Power(max) = Maximum power dissipation figure, obtained from the above graph for a given V<sub>CE</sub> and source resistance (R<sub>s</sub>)

Power(actual) = Actual power dissipation in users circuit

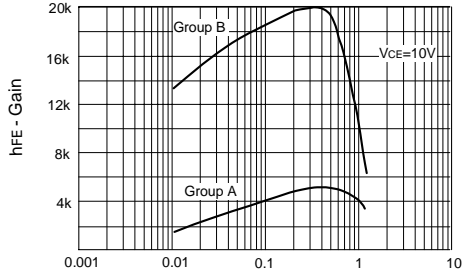
# ZTX600 ZTX601

## TYPICAL CHARACTERISTICS



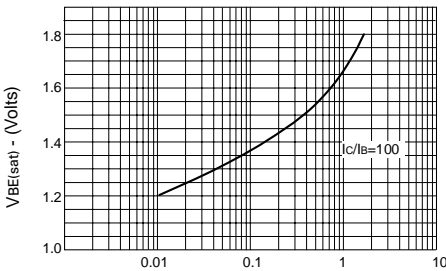
$I_C$  - Collector Current (Amps)

**$V_{CE(sat)}$  v  $I_C$**



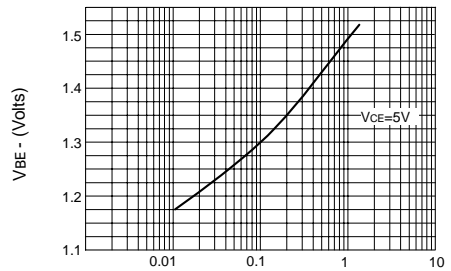
$I_C$  - Collector Current (Amps)

**$h_{FE}$  v  $I_C$**



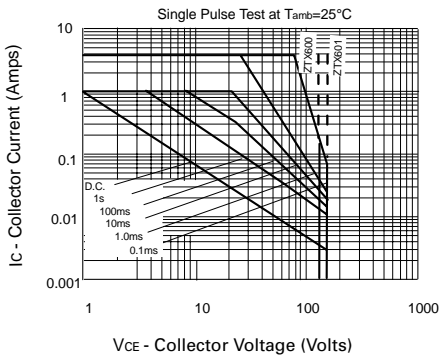
$I_C$  - Collector Current (Amps)

**$V_{BE(sat)}$  v  $I_C$**



$I_C$  - Collector Current (Amps)

**$V_{BE(on)}$  v  $I_C$**



$V_{CE}$  - Collector Voltage (Volts)

**Safe Operating Area**

单击下面可查看定价，库存，交付和生命周期等信息

[>>Diodes Incorporated\(达达科技\(美台\)\)](#)