



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



NPN SILICON PLANAR MEDIUM POWER HIGH VOLTAGE TRANSISTOR

ISSUE 2 – APRIL 2002

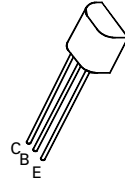
FEATURES

- * 400 Volt V_{CEO}
- * 0.5 Amp continuous current
- * $P_{tot}=1$ Watt

APPLICATIONS

- * Telephone dialler circuits

ZTX658



E-Line

TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	400	V
Collector-Emitter Voltage	V_{CEO}	400	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	1	A
Continuous Collector Current	I_C	500	mA
Power Dissipation at $T_{amb}=25^{\circ}C$ derate above $25^{\circ}C$	P_{tot}	1 5.7	W mW/ $^{\circ}C$
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200	$^{\circ}C$

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	400			V	$I_C=100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	400			V	$I_C=10mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E=100\mu A$
Collector Cut-Off Current	I_{CBO}			100	nA	$V_{CB}=320V$
Collector Cut-Off Current	I_{CBO}			100	nA	$V_{CE}=320V$
Emitter Cut-Off Current	I_{EBO}			100	nA	$V_{EB}=4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.3 0.25 0.5	V V V	$I_C=20mA, I_B=1mA$ $I_C=50mA, I_B=5mA^*$ $I_C=100mA, I_B=10mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.9	V	$I_C=100mA, I_B=10mA^*$
Base-Emitter Turn On Voltage	$V_{BE(on)}$			0.9	V	$I_C=100mA, V_{CE}=5V^*$
Static Forward Current Transfer Ratio	h_{FE}	50 50 40				$I_C=1mA, V_{CE}=5V^*$ $I_C=100mA, V_{CE}=5V^*$ $I_C=200mA, V_{CE}=10V^*$

ZTX658

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

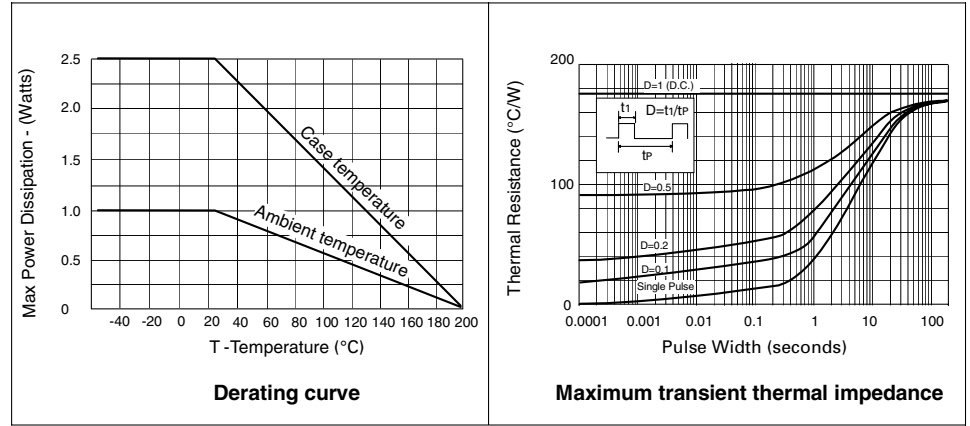
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Transition Frequency	f_T	50			MHz	$I_C=20\text{mA}$, $V_{CE}=20\text{V}$ $f=20\text{MHz}$
Output capacitance	C_{obo}			10	pF	$V_{CB}=20\text{V}$, $f=1\text{MHz}$
Switching times	t_{on}		130		ns	$I_C=100\text{mA}$, $V_C=100\text{V}$ $I_{B1}=10\text{mA}$, $I_{B2}=-20\text{mA}$
	t_{off}		3300		ns	

* Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

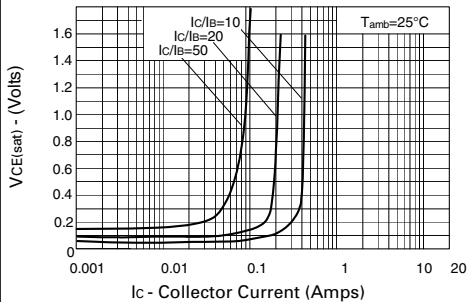
THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient ₁	$R_{th(j-amb)1}$	175	$^{\circ}\text{C/W}$
Junction to Ambient ₂	$R_{th(j-amb)2} \dagger$	116	$^{\circ}\text{C/W}$
Junction to Case	$R_{th(j-case)}$	70	$^{\circ}\text{C/W}$

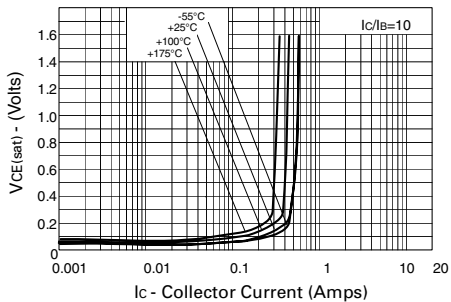
$\dagger$ Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.



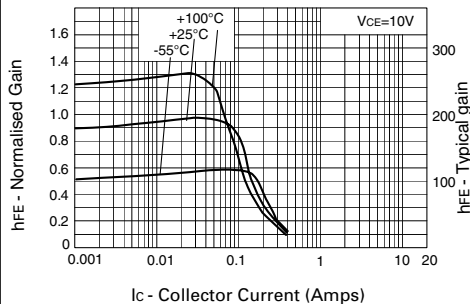
TYPICAL CHARACTERISTICS



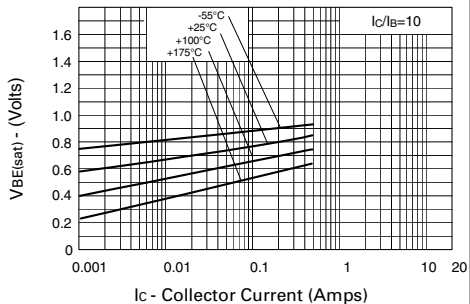
$V_{CE(sat)}$ v I_C



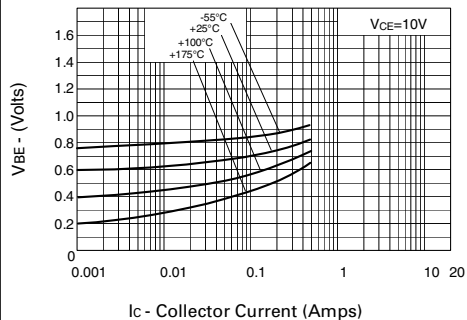
$V_{CE(sat)}$ v I_C



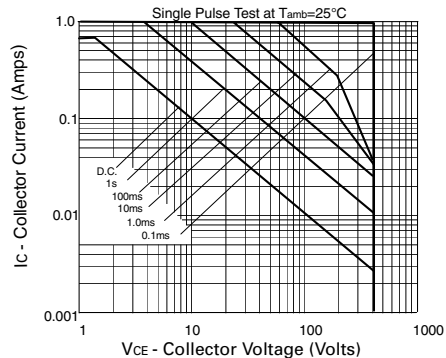
h_{FE} v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



Safe Operating Area