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!

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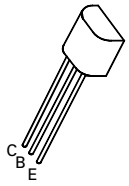
NPN SILICON PLANAR MEDIUM POWER TRANSISTORS

ZTX650 ZTX651

ISSUE 2 – JULY 94

FEATURES

* 60 Volt V_{CEO}
* 2 Amp continuous current
* Low saturation voltage
* P_{tot}=1 Watt



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	ZTX650	ZTX651	UNIT
Collector-Base Voltage	V_{CBO}	60	80	V
Collector-Emitter Voltage	V_{CEO}	45	60	V
Emitter-Base Voltage	V_{EBO}	5		V
Peak Pulse Current	I_{CM}	6		A
Continuous Collector Current	I_C	2		A
Power Dissipation at T_{amb}=25°C derate above 25°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°C unless otherwise stated).

PARAMETER	SYMBOL	ZTX650			ZTX651			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	60			80			V	I_C=100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	45			60			V	I_C=10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			5			V	I_E=100μA
Collector Cut-Off Current	I_{CBO}			0.1 10			0.1 10	μA μA μA μA	V_{CB}=45V V_{CB}=60V V_{CB}=45V,T_{amb}=100°C V_{CB}=60V,T_{amb}=100°C
Emitter Cut-Off Current	I_{EBO}			0.1			0.1	μA	V_{EB}=4V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.12 0.23	0.3 0.5		0.12 0.23	0.3 0.5	V V	I_C=1A, I_B=100mA* I_C=2A, I_B=200mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.9	1.25		0.9	1.25	V	I_C=1A, I_B=100mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		0.8	1		0.8	1	V	IC=1A, V_{CE}=2V*

ZTX650
ZTX651

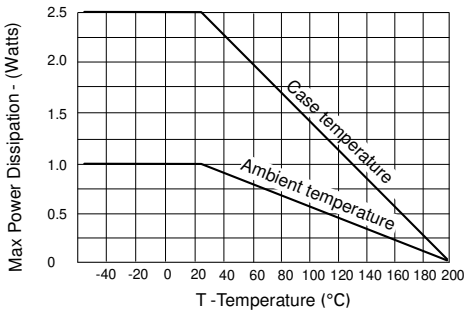
PARAMETER	SYMBOL	ZTX650			ZTX651			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Transition Frequency	f_T	140	175		140	175		MHz	I_C=100mA, V_{CE}=5V f=100MHz
Switching Times	t_{on}		45			45		ns	I_C=500mA, V_{CC}=10V I_{B1}=I_{B2}=50mA
	t_{off}		800			800		ns	
Output Capacitance	C_{obo}			30			30	pF	V_{CB}=10V f=1MHz

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%

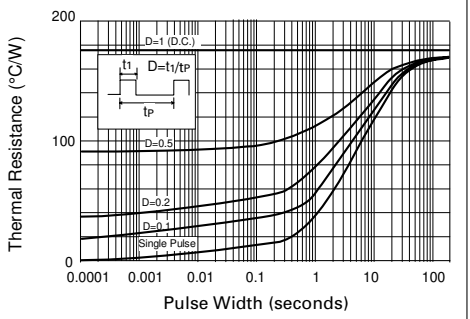
THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance:Junction to Ambient$_1$	$R_{th(j\text{-}amb)1}$	175	°C/W
Junction to Ambient$_2$	$R_{th(j\text{-}amb)2}$†	116	°C/W
Junction to Case	$R_{th(j\text{-}case)}$	70	°C/W

† Device mounted on P.C.B. with copper equal to 1 sq. Inch minimum.

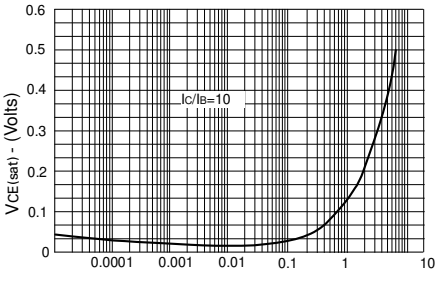


Derating curve

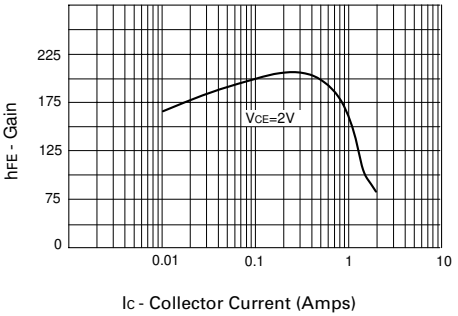


Maximum transient thermal impedance

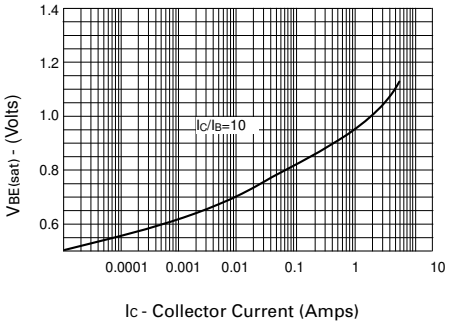
TYPICAL CHARACTERISTICS



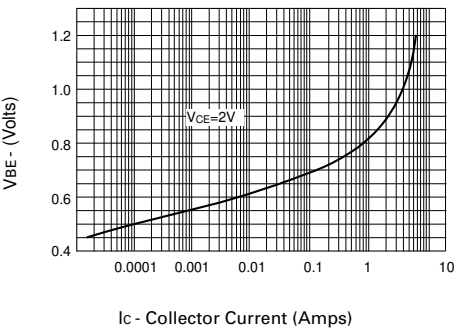
VCE(sat) v IC



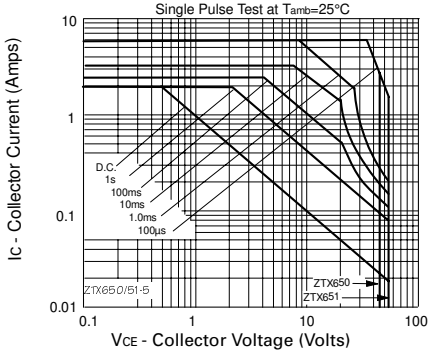
hFE v IC



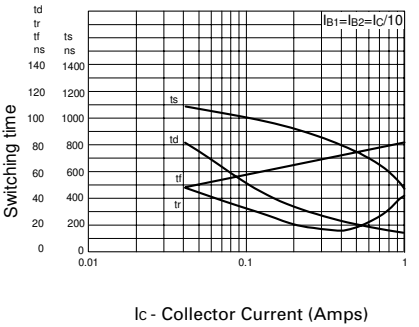
VBE(sat) v IC



VBE(on) v IC



Safe Operating Area



Switching Speeds