

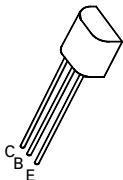
PNP SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

ISSUE 3 – JUNE 94

FEATURES

- * 2 Amps continuous current
- * Up to 5 Amps peak current
- * Very low saturation voltage
- * Excellent gain characteristics up to 2 Amps
- * Spice model available

ZTX956



E-Line

T092 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-220	V
Collector-Emitter Voltage	V_{CEO}	-200	V
Emitter-Base Voltage	V_{EBO}	-6	V
Peak Pulse Current	I_{CM}	-5	A
Continuous Collector Current	I_C	-2	A
Practical Power Dissipation*	P_{totp}	1.58	W
Power Dissipation at $T_{amb}=25^{\circ}C$	P_{tot}	1.2	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200	$^{\circ}C$

*The power which can be dissipated assuming the device is mounted in a typical manner on a P.C.B. with copper equal to 1 inch square minimum

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-220	-300		V	$I_C = -100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	-220	-300		V	$I_C = -1\mu A$, $R_B \leq 1K\Omega$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-200	-240		V	$I_C = -10mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-6	-8		V	$I_E = -100\mu A$
Collector Cut-Off Current	I_{CBO}			-50 -1	nA μA	$V_{CB} = 200V$ $V_{CB} = 200V$, $T_{amb} = 100^{\circ}C$
Collector Cut-Off Current	I_{CER} $R \leq 1K\Omega$			-50 -1	nA μA	$V_{CB} = 200V$ $V_{CB} = 200V$, $T_{amb} = 100^{\circ}C$
Emitter Cut-Off Current	I_{EBO}			-10	nA	$V_{EB} = -6V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-30 -110 -150	-50 -150 -250	mV mV mV	$I_C = -100mA$, $I_B = -10mA^*$ $I_C = 1A$, $I_B = -100mA^*$ $I_C = 2A$, $I_B = -400mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-920	-1050	mV	$I_C = 2A$, $I_B = -400mA$

ZTX956

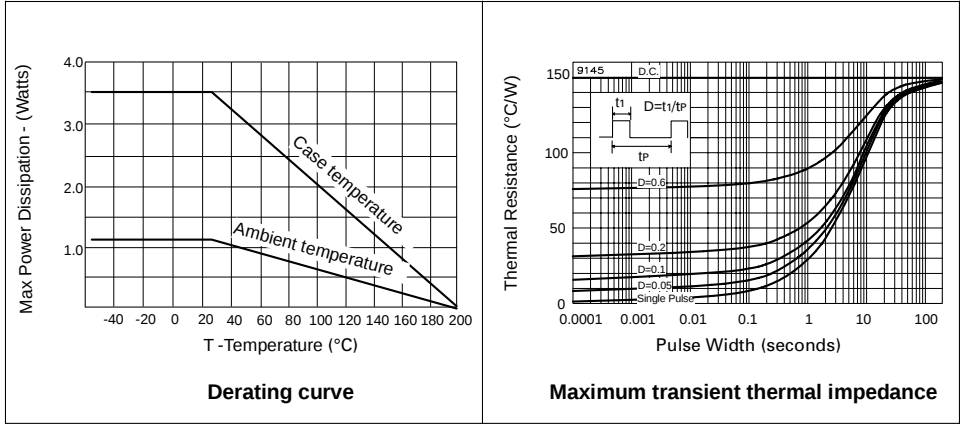
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base-Emitter Turn-On Voltage	V _{BE(on)}		-770	-900	mV	I _C =-2A, V _{CE} =-5V*
Static Forward Current Transfer Ratio	h _{FE}	100 100 50	200 200 150 10	300		I _C =-10mA, V _{CE} =-5V* I _C =-1A, V _{CE} =-5V* I _C =-2A, V _{CE} =-5V* I _C =-5A, V _{CE} =-5V*
Transition Frequency	f _T		110		MHz	I _C =-100mA, V _{CE} =-10V f=50MHz
Output Capacitance	C _{obo}		32		pF	V _{CB} =-20V, f=1MHz
Switching Times	t _{on} t _{off}		67 1140		ns ns	I _C =-1A, I _{B1} =-100mA I _{B2} =100mA, V _{CC} =-50V

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

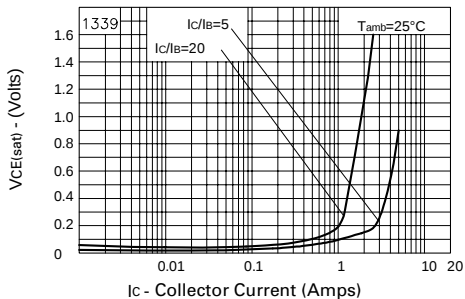
THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient	R _{th(j-amb)}	150	°C/W
Junction to Case	R _{th(j-case)}	50	°C/W

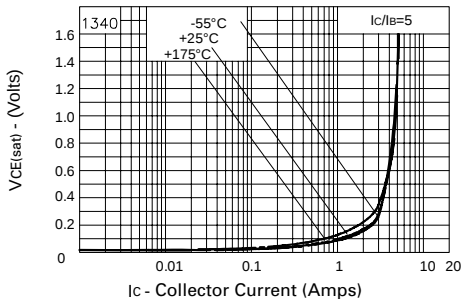


ZTX956

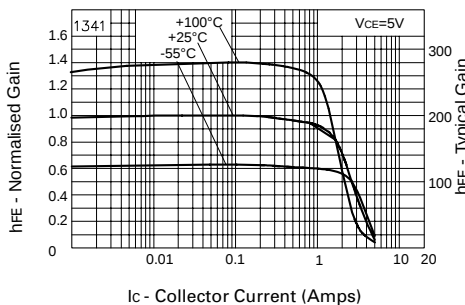
TYPICAL CHARACTERISTICS



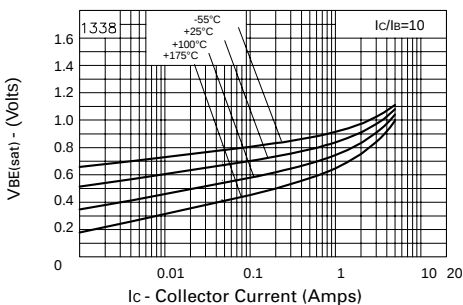
$V_{CE(sat)}$ v I_C



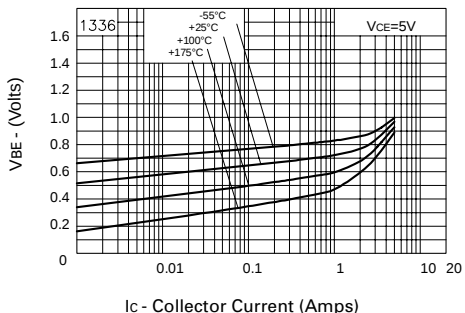
$V_{CE(sat)}$ v I_C



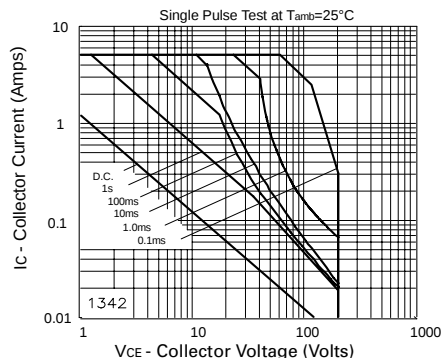
h_{FE} v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



Safe Operating Area