

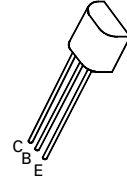
NPN SILICON PLANAR MEDIUM POWER HIGH CURRENT TRANSISTOR

ISSUE 1 – APRIL 94

ZTX869

FEATURES

- * 25 Volt V_{CEO}
- * 5 Amps continuous current
- * Up to 20 Amps peak current
- * Very low saturation voltage
- * High Gain
- * $P_{tot}=1.2$ Watts



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	6	V
Peak Pulse Current	I_{CM}	20	A
Continuous Collector Current	I_C	5	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	$V_{(BR)CBO}$	60	120		V	$I_C=100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	60	120		V	$I_C=1\mu A, R_B \leq 1K\Omega$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	25	35		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	$V_{CB}=50V$ $V_{CB}=50V, T_{amb}=100^{\circ}C$
Collector Cut-Off Current	I_{CER} $R \leq 1K\Omega$			50 1	nA μA	$V_{CB}=50V$ $V_{CB}=50V, T_{amb}=100^{\circ}C$
Emitter Cut-Off Current	I_{EBO}			10	nA	$V_{EB}=6V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		25 50 100 180	50 80 200 220	mV mV mV mV	$I_C=0.5A, I_B=10mA^*$ $I_C=1A, I_B=10mA^*$ $I_C=2A, I_B=100mA^*$ $I_C=5A, I_B=100mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		880	950	mV	$I_C=5A, I_B=100mA^*$

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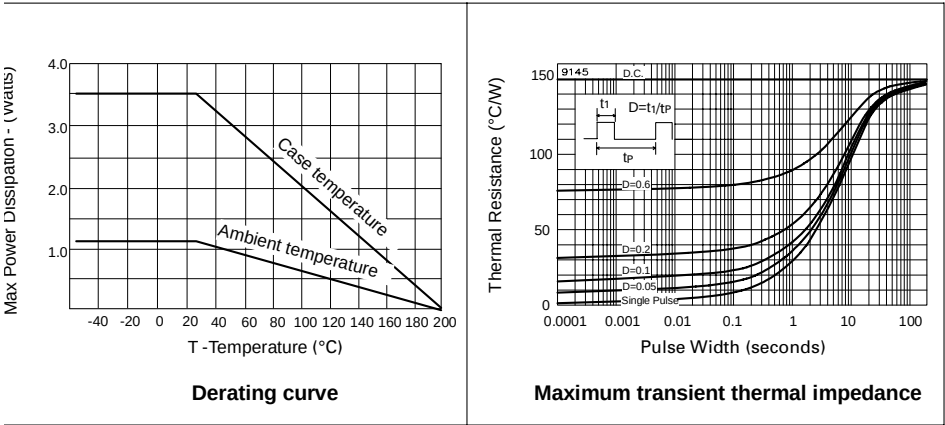
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Base-Emitter Turn-On Voltage	V _{BE(on)}		800	900	mV	I _C =5A, V _{CE} =1V*
Static Forward Current Transfer Ratio	h _{FE}	300 300 250 40	450 450 400 100			I _C =10mA, V _{CE} =1V I _C =1A, V _{CE} =1V* I _C =5A, V _{CE} =1V* I _C =20A, V _{CE} =1V*
Transition Frequency	f _T		100		MHz	I _C =100mA, V _{CE} =10V f=50MHz
Output Capacitance	C _{obo}		70		pF	V _{CB} =10V, f=1MHz
Switching Times	t _{on} t _{off}		60 680		ns ns	I _C =1A, I _{B1} =100mA I _{B2} =100mA, V _{CC} =10V

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

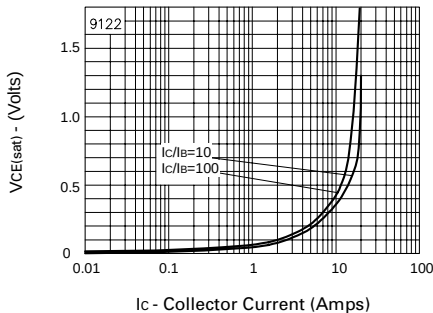
THERMAL CHARACTERISTICS

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

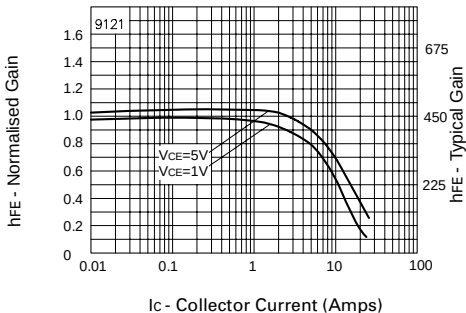


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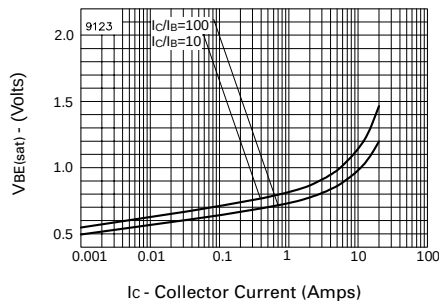
TYPICAL CHARACTERISTICS



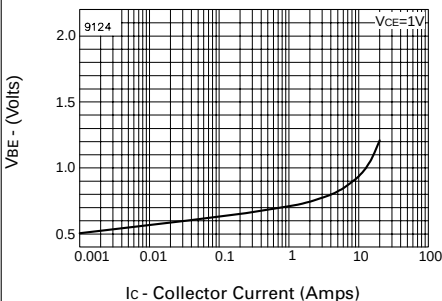
$V_{CE(sat)}$ v I_C



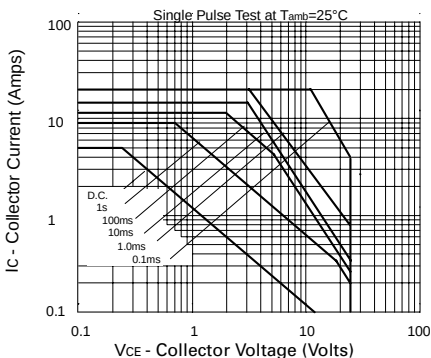
h_{FE} v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



Safe Operating Area

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