

PNP SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ZTX789A

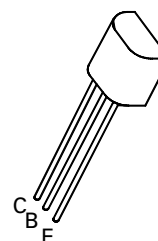
ISSUE 2 – APRIL 94

FEATURES

- * 25 Volt V_{CEO}
- * Gain of 200 at $I_C=2$ Amps
- * Very low saturation voltage

APPLICATIONS

- * Darlington replacement
- * Battery powered circuits
- * Motor drivers



E-Line
TO92 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	-25	V
Collector-Emitter Voltage	V_{CEO}	-25	V
Emitter-Base Voltage	V_{EBO}	-5	V
Peak Pulse Current	I_{CM}	-8	A
Continuous Collector Current	I_C	-3	A
Practical Power Dissipation*	P_{totp}	1.5	W
Power Dissipation at $T_{amb}=25^\circ\text{C}$ derate above 25°C	P_{tot}	1 5.7	W mW/ $^\circ\text{C}$
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +200	$^\circ\text{C}$

*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 $T_{amb} = 25^\circ\text{C}$)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-25			V	$I_C=-100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-25			V	$I_C=-10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_E=-100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			-0.1	μA	$V_{CB}=-15\text{V}$
Emitter Cut-Off Current	I_{EBO}			-0.1	μA	$V_{EB}=-4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.25 -0.45 -0.5	V	$I_C=-1\text{A}, I_B=-10\text{mA}^*$ $I_C=-2\text{A}, I_B=-20\text{mA}^*$ $I_C=-3\text{A}, I_B=-100\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			-1.0	V	$I_C=-1\text{A}, I_B=-10\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-0.8		V	$I_C=-1\text{A}, V_{CE}=-2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	300 250 200 100		800		$I_C=-10\text{mA}, V_{CE}=-2\text{V}$ $I_C=-1\text{A}, V_{CE}=-2\text{V}^*$ $I_C=-2\text{A}, V_{CE}=-2\text{V}^*$ $I_C=-6\text{A}, V_{CE}=-2\text{V}^*$

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

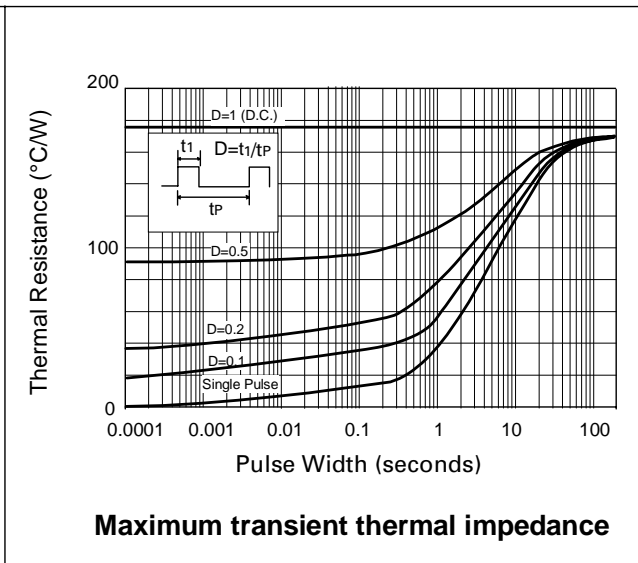
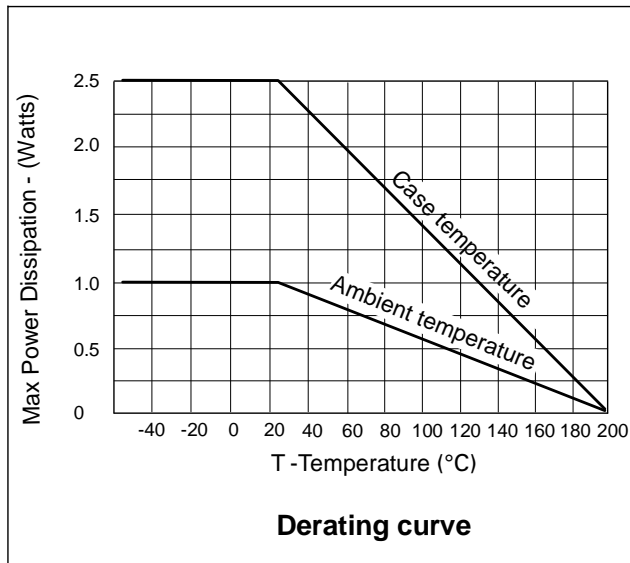
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Transition Frequency	f_T	100			MHz	$I_C = -50mA$, $V_{CE} = -5V$ $f = 50MHz$
Input Capacitance	C_{ibo}		225		pF	$V_{EB} = -0.5V$, $f = 1MHz$
Output Capacitance	C_{obo}		25		pF	$V_{CB} = -10V$, $f = 1MHz$
Switching Times	t_{on} t_{off}		35 400		ns ns	$I_C = -500mA$, $I_{B1} = -50mA$ $I_{B2} = -50mA$, $V_{CC} = -10V$

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

THERMAL CHARACTERISTICS

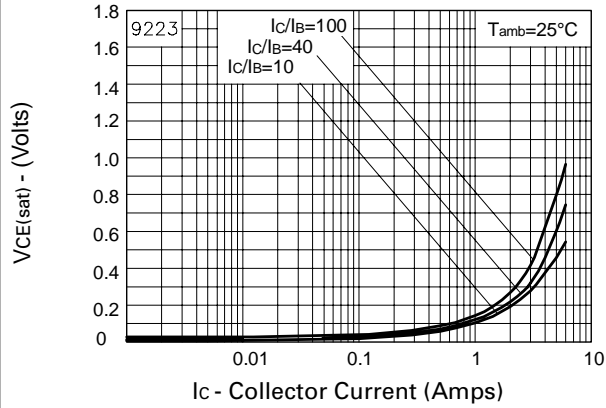
PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient ₁ Junction to Ambient ₂ Junction to Case	$R_{th(j-amb)1}$ $R_{th(j-amb)2} \dagger$ $R_{th(j-case)}$	175 116 70	$^{\circ}C/W$ $^{\circ}C/W$ $^{\circ}C/W$

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

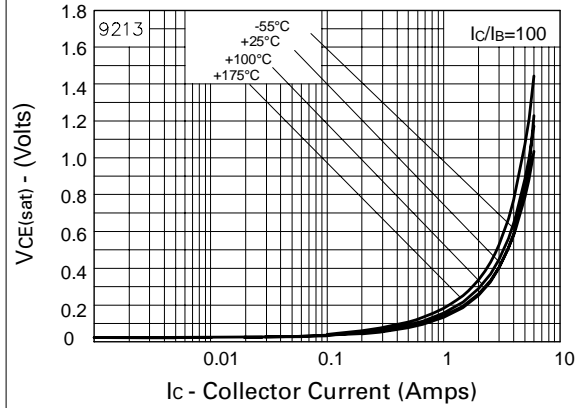


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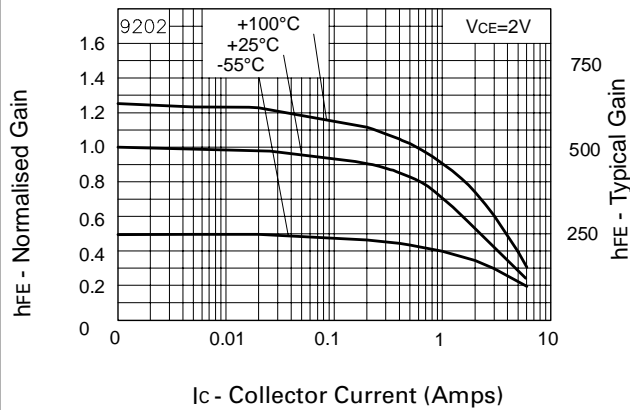
TYPICAL CHARACTERISTICS



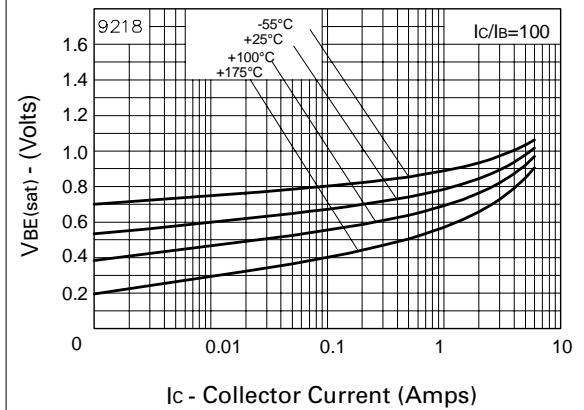
VCE(sat) v IC



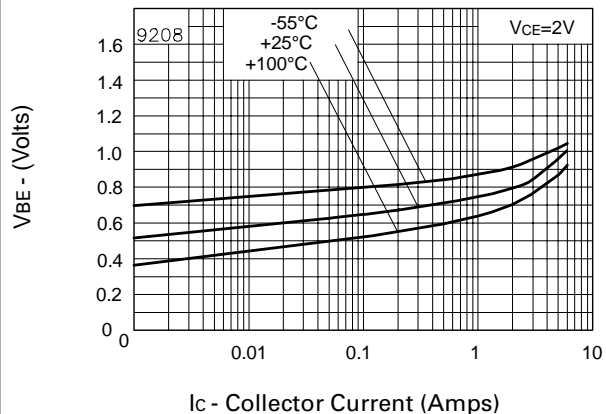
VCE(sat) v IC



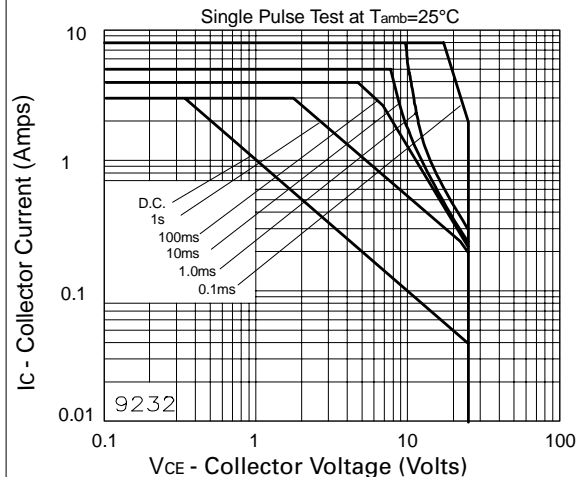
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area