

# SOT89 NPN SILICON PLANAR MEDIUM POWER TRANSISTOR

## BCX68

ISSUE 3 – FEBRUARY 2007

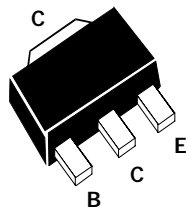


### FEATURES

- \* High gain and low saturation voltages

COMPLEMENTARY TYPE – BCX69

PARTMARKING DETAIL – BCX68 – CE  
BCX68-16 – CC  
BCX68-25 – CD



SOT89

### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	25	V
Collector-Emitter Voltage	$V_{CEO}$	20	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Peak Pulse Current	$I_{CM}$	2	A
Continuous Collector Current	$I_C$	1	A
Power Dissipation at $T_{amb}=25^\circ\text{C}$	$P_{tot}$	1	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-65 to +150	$^\circ\text{C}$

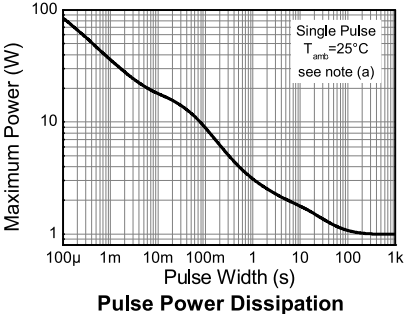
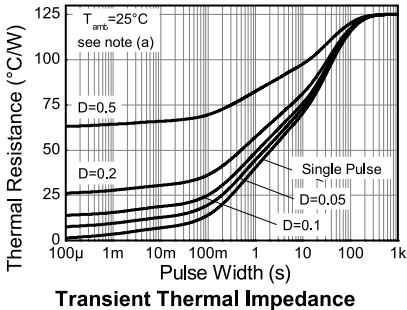
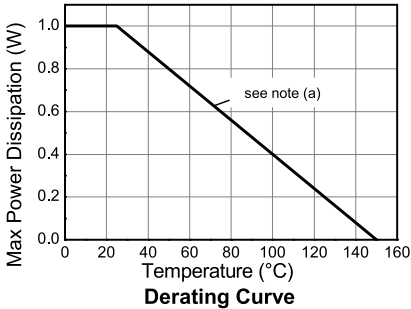
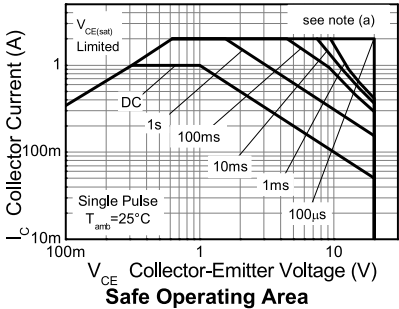
### ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated).

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	$V_{(BR)CEO}$	20			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 10	$\mu\text{A}$ $\mu\text{A}$	$V_{CB} = 25\text{V}$ $V_{CB} = 25\text{V}, T_a = 150^\circ\text{C}$
Emitter Cut-Off Current	$I_{EBO}$			10	$\mu\text{A}$	$V_{EB} = 5\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.5	V	$I_C = 1\text{A}, I_B = 100\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			1.0	V	$I_C = 1\text{A}, V_{CE} = 1\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	50 85 60 100 160	250	375 250 400		$I_C = 5\text{mA}, V_{CE} = 10\text{V}$ $I_C = 500\text{mA}, V_{CE} = 1\text{V}$ $I_C = 1\text{A}, V_{CE} = 1\text{V}^*$ $I_C = 500\text{mA}, V_{CE} = 1\text{V}^*$ $I_C = 500\text{mA}, V_{CE} = 1\text{V}$
Transition Frequency	$f_T$	100			MHz	$I_C = 100\text{mA}, V_{CE} = 5\text{V}, f = 100\text{MHz}$
Output Capacitance	$C_{obo}$			25	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

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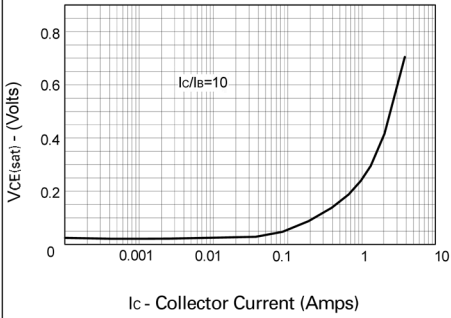
## Characteristics



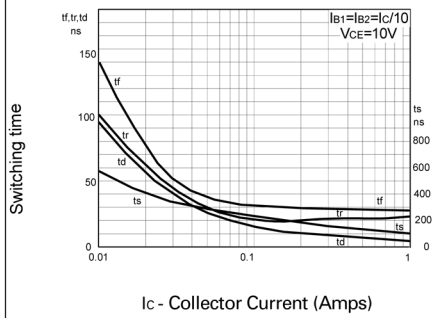
**Note:**

(a) Measured on a 15mm x 15mm x 1.6mm FR4 board with a high coverage of single sided 1oz weight copper.

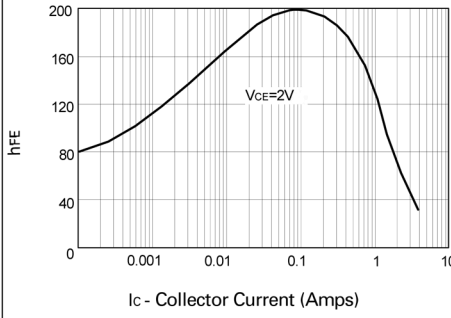
## TYPICAL CHARACTERISTICS



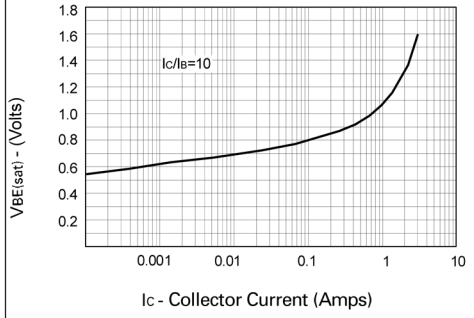
**$V_{CE(sat)}$  v  $I_c$**



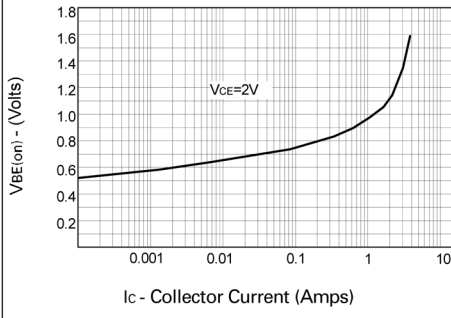
**Switching Speeds**



**$h_{FE}$  v  $I_c$**



**$V_{BE(sat)}$  v  $I_c$**



**$V_{BE(on)}$  v  $I_c$**