

# SOT89 NPN SILICON PLANAR DARLINGTON TRANSISTOR

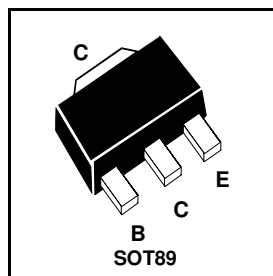
## BST51

ISSUE 3 – JANUARY 1996

### FEATURES

- \* Fast Switching
- \* High  $h_{FE}$

PARTMAKING DETAIL — AS2



### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	80	V
Collector-Emitter Voltage	$V_{CEO}$	60	V
Emitter-Base Voltage	$V_{EBO}$	10	V
Pea Pulse Current	$I_{CM}$	1.5	A
Continuous Collector Current	$I_C$	500	mA
Base Current	$I_B$	100	mA
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.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80		V	$I_C=10\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	60		V	$I_C=10\text{mA}, I_B=0^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	10		V	$I_E=10\mu\text{A}, I_C=0$
Emitter Cut-Off Current	$I_{EBO}$		10	$\mu\text{A}$	$V_{EB}=8\text{V}, I_E=0$
Collector-Emitter Cut-Off Current	$I_{CES}$		10	$\mu\text{A}$	$V_{CE}=60\text{V}, I_C=0$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		1.3 1.3	V V	$I_C=500\text{mA}, I_B=0.5\text{mA}$ $I_C=500\text{mA}, I_B=0.5\text{mA}$ $T_j=150^\circ\text{C}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		1.9	V	$I_C=500\text{mA}, I_B=0.5\text{mA}$
Static Forward Current Transfer Ratio	$h_{FE}$	1K 2K			$I_C=150\text{mA}, V_{CE}=10\text{V}^*$ $I_C=500\text{mA}, V_{CE}=-10\text{V}^*$
Turn On Time	$t_{on}$	400 Typical		ns	$I_C=500\text{mA}$ $I_{Boff}=I_{Boif}=0.5\text{mA}$
Turn Off Time	$t_{off}$	1.5K Typical		ns	

\* Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$   
Spice parameter data is available upon request for this device  
For typical graphs see FMM T38A datasheet