

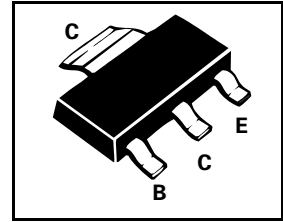
# SOT223 NPN SILICON PLANAR MEDIUM POWER TRANSISTORS

ISSUE 3 – FEBRUARY 1996

## BSP40 BSP42

COMPLEMENTARY TYPES – BSP40 – BSP30  
BSP42 – BSP32

PARTMARKING DETAIL – Device type in full



### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	BSP40	BSP42	UNIT
Collector-Base Voltage	$V_{CBO}$	70	90	V
Collector-Emitter Voltage	$V_{CEO}$	60	80	V
Emitter-Base Voltage	$V_{EBO}$	5		V
Peak Pulse Current	$I_{CM}$	2		A
Continuous Collector Current	$I_C$	1		A
Base Current	$I_B$	100		mA
Power Dissipation at $T_{amb}=25^\circ\text{C}$	$P_{tot}$	2		W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 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	$V_{(BR)CBO}$	70 90		V V	$I_C=100\mu\text{A}$ $I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	60 80		V V	$I_C=10\text{mA}$ $I_C=10\text{mA}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5		V	$I_E=10\mu\text{A}$
Collector Cut-Off Current	$I_{CBO}$		100 50	nA $\mu\text{A}$	$V_{CB}=60\text{V}$ $V_{CB}=60\text{V}, T_{amb}=125^\circ\text{C}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.25 0.5	V V	$I_C=150\text{mA}, I_B=15\text{mA}$ $I_C=500\text{mA}, I_B=50\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		1.0 1.2	V V	$I_C=150\text{mA}, I_B=15\text{mA}$ $I_C=500\text{mA}, I_B=50\text{mA}$
Static Forward Current Transfer Ratio	$h_{FE}$	10 40 30	120		$I_C=100\mu\text{A}, V_{CE}=5\text{V}$ $I_C=100\text{mA}, V_{CE}=5\text{V}$ $I_C=500\text{mA}, V_{CE}=5\text{V}$
Collector Capacitance	$C_c$		12	pF	$V_{CB}=10\text{V}, f=1\text{MHz}$
Emitter Capacitance	$C_e$		90	pF	$V_{EB}=0.5\text{V}, f=1\text{MHz}$
Transition Frequency	$f_T$	100		MHz	$I_C=50\text{mA}, V_{CE}=10\text{V}$ $f=35\text{MHz}$
Turn-On Time	$T_{on}$		250	ns	$V_{CC}=20\text{V}, I_C=100\text{mA}$
Turn-Off Time	$T_{off}$		1000	ns	$I_{B1}=-I_{B2}=-5\text{mA}$

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$   
For typical characteristics graphs see FMMT493 datasheet.