

MPS6520, MPS6521 (NPN) and MPS6522, MPS6523 (PNP) are complementary silicon planar epitaxial transistors designed for general purpose amplifier applications and for complementary circuitry.

ABSOLUTE MAXIMUM RATINGS

|  |                | <u>MPS6520, 1</u> | <u>MPS6522, 3</u> |
|--|----------------|-------------------|-------------------|
| Collector-Base Voltage   | $V_{CB0}$      | 40V               | 25V               |
| Collector-Emitter Voltage                                      | $V_{CE0}$      |                   | 25V               |
| Emitter-Base Voltage   | $V_{EB0}$      |                   | 4V                |
| Collector Current  | $I_C$          |                   | 100mA             |
| Total Power Dissipation @ $T_A=25^\circ C$<br>$T_C=25^\circ C$ | $P_{tot}$      |                   | 350mW<br>1W       |
| Operating Junction & Storage Temperature                       | $T_j, T_{stg}$ |                   | -55 to +150°C     |

ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ C$  unless otherwise specified)

| PARAMETER                            | SYMBOL                   | MIN      | MAX        | UNIT    | TEST CONDITIONS               |
|--------------------------------------|--------------------------|----------|------------|---------|-------------------------------|
| Collector-Emitter Breakdown Voltage  | $BV_{CE0}$               | 25       |            | V       | $I_C=0.5mA$ $I_B=0$           |
| Emitter-Base Breakdown Voltage       | $BV_{EB0}$               | 4        |            | V       | $I_E=10\mu A$ $I_C=0$         |
| Collector Cutoff Current             | $I_{CB0}$                |          |            |         |                               |
|                                      | MPS6520, 1               |          | 50         | nA      | $V_{CB}=30V$ $I_E=0$          |
|                                      | MPS6520, 1               |          | 1          | $\mu A$ | $V_{CB}=30V$ $T_A=60^\circ C$ |
|                                      | MPS6522, 3               |          | 50         | nA      | $V_{CB}=20V$ $I_E=0$          |
|                                      | MPS6522, 3               |          | 1          | $\mu A$ | $V_{CB}=20V$ $T_A=60^\circ C$ |
| D.C. Current Gain                    | MPS6520, 2<br>MPS6521, 3 | $H_{FE}$ | 100<br>150 |         | $I_C=100\mu A$ $V_{CE}=10V$   |
|                                      | MPS6520, 2<br>MPS6521, 3 |          | 200<br>300 |         | $I_C=2mA$ $V_{CE}=10V$        |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$            |          | 0.5        | V       | $I_C=50mA$ $I_B=5mA$          |



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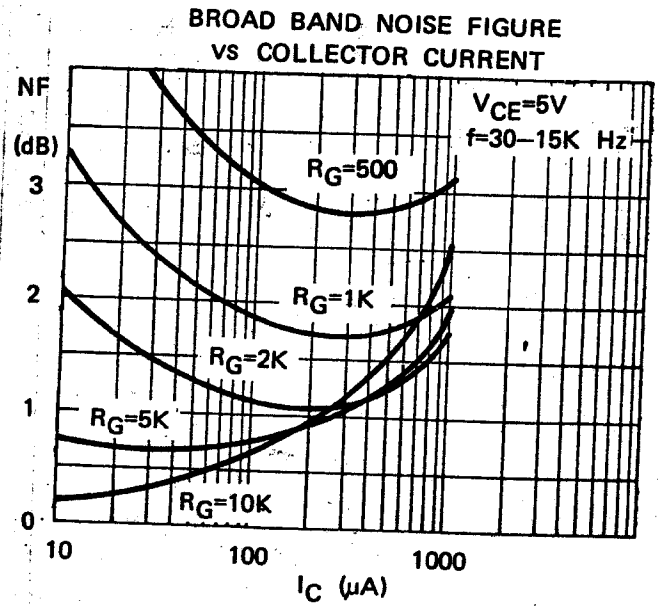
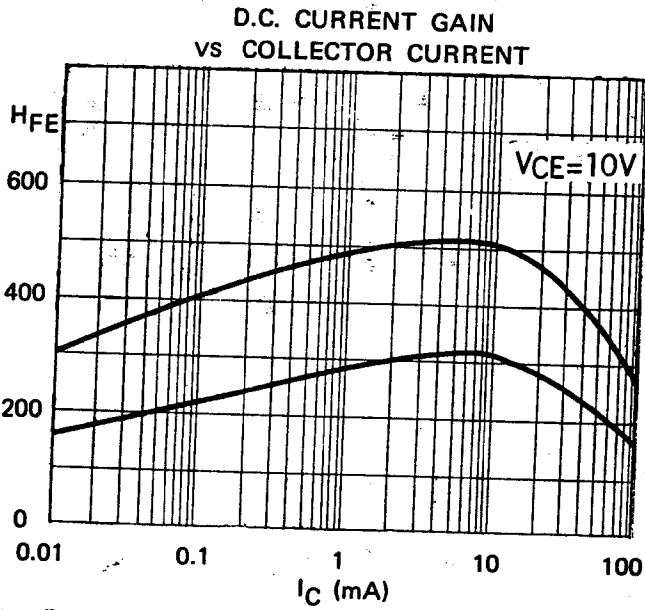
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ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )

| PARAMETER                      | SYMBOL   | TYP        | MAX | UNIT | TEST CONDITIONS  |  |
|--------------------------------|----------|------------|-----|------|--|--|
| Current Gain-Bandwidth Product | $f_T$    |            |     | MHz  | $I_C=2\text{mA}$ $V_{CE}=10\text{V}$   |  |
|                                |          | MPS6520, 1 | 390 |      |  |  |
|                                |          | MPS6522, 3 | 340 |      |  |  |
|                                |          |            |     |      |  |  |
|                                |          | MPS6520, 1 | 480 |      | $I_C=10\text{mA}$ $V_{CE}=10\text{V}$  |  |
|                                |          | MPS6522, 3 | 420 |      |  |  |
| Output Capacitance             | $C_{ob}$ |            | 3.5 | pF   | $V_{CB}=10\text{V}$ $I_E=0$ $f=1\text{MHz}$  |  |
| Noise Figure                   | NF       | 1.8        | 3   | dB   | $I_C=10\mu\text{A}$ $V_{CE}=5\text{V}$<br>$R_S=10\text{k}\Omega$<br>$f=10\text{Hz}$ to $10\text{kHz}$<br>$BB=15.7\text{kHz}$ |  |

TYPICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )



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