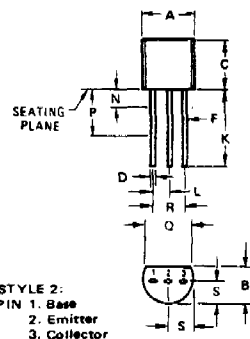
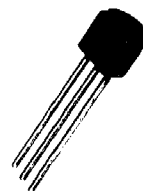


MPS6544, MPS6545 (SILICON)

NPN SILICON ANNULAR VHF MIXER TRANSISTORS

- ... designed for use in VHF mixer applications.
- Collector-Emitter Breakdown Voltage
 $V_{CEO} = 45 \text{ Vdc (Min) @ } I_C = 1.0 \text{ mAdc}$
 - Low Feedback Capacitance -
 $C_{re} = 0.5 \text{ pF (Typ) @ } V_{CB} = 10 \text{ Vdc - MPS6545}$

NPN SILICON VHF MIXER TRANSISTORS



| DIM | MILLIMETERS | | INCHES | |
|-----|-------------|-------|--------|-------|
| | MIN | MAX | MIN | MAX |
| A | 4.450 | 5.200 | 0.175 | 0.205 |
| B | 3.180 | 4.190 | 0.125 | 0.165 |
| C | 4.320 | 5.330 | 0.170 | 0.210 |
| D | 0.407 | 0.533 | 0.016 | 0.021 |
| F | 0.407 | 0.487 | 0.016 | 0.019 |
| K | 12.700 | - | 0.500 | - |
| L | 1.150 | 1.390 | 0.045 | 0.055 |
| N | - | 1.270 | - | 0.050 |
| P | 8.350 | - | 0.250 | - |
| Q | 3.430 | - | 0.135 | - |
| R | 2.410 | 2.670 | 0.095 | 0.105 |
| S | 2.030 | 2.670 | 0.080 | 0.105 |

TO-92

*MAXIMUM RATINGS

| Rating | Symbol | Value | Unit |
|---|---------------|-------------|------------------------------|
| Collector-Emitter Voltage | V_{CEO} | 45 | Vdc |
| Collector-Base Voltage | V_{CB} | 60 | Vdc |
| Emitter-Base Voltage | V_{EB} | 4.0 | Vdc |
| Collector Current - Continuous | I_C | 100 | mA dc |
| Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 625 5.0 | mW mW/ $^\circ\text{C}$ |
| Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C | P_D | 1.5 12 | Watt mW/ $^\circ\text{C}$ |
| Operating and Storage Junction Temperature Range | $T_{J, Tstg}$ | -55 to +150 | $^\circ\text{C}$ |

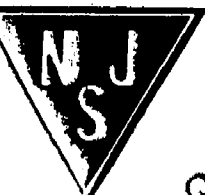
THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|--------------------|-----|--------------------|
| Thermal Resistance, Junction to Ambient | $R_{\theta JA(1)}$ | 357 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 125 | $^\circ\text{C/W}$ |

*Indicates JEDEC Registered Data

(1) $R_{\theta JA}$ is measured with the device soldered into a typical printed circuit board.

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



MPS6544, MPS6545 (continued)

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|--|---------------|---------|------|------|-------|
| OFF CHARACTERISTICS | | | | | |
| Collector-Emitter Breakdown Voltage (1) ($I_C = 1.0 \text{ mA dc}, I_B = 0$) | BV_{CEO} | 45 | — | — | Vdc |
| Collector-Base Breakdown Voltage ($I_C = 10 \mu\text{A dc}, I_E = 0$) | BV_{CBO} | 80 | — | — | Vdc |
| Emitter-Base Breakdown Voltage ($I_E = 10 \mu\text{A dc}, I_C = 0$) | BV_{EBO} | 4.0 | — | — | Vdc |
| Collector Cutoff Current ($V_{CB} = 35 \text{ Vdc}, I_E = 0$) | I_{CBO} | — | — | 500 | nA dc |
| ON CHARACTERISTICS | | | | | |
| DC Current Gain (1) ($I_C = 30 \text{ mA dc}, V_{CE} = 10 \text{ Vdc}$) | h_{FE} | 20 | 100 | — | — |
| Collector-Emitter Saturation Voltage ($I_C = 30 \text{ mA dc}, I_B = 3.0 \text{ mA dc}$) | $V_{CE(sat)}$ | — | 0.2 | 0.5 | Vdc |
| Base-Emitter On Voltage (1) ($I_C = 10 \text{ mA dc}, V_{CE} = 10 \text{ Vdc}$) | $V_{BE(on)}$ | — | 0.7 | 0.95 | Vdc |
| DYNAMIC CHARACTERISTICS | | | | | |
| Output Admittance ($I_C = 10 \text{ mA dc}, V_{CE} = 10 \text{ Vdc}, f = 45 \text{ MHz}$) | Y_{oe} | — | — | 0.10 | mmhos |
| Common-Emitter Reverse Transfer Capacitance ($V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 100 \text{ kHz}$) | C_{re} | MPS6544 | 0.55 | 0.65 | pF |
| | | MPS6545 | — | 0.58 | |
| Output Voltage ($V_{in} \text{ (RMS)} = 15 \text{ mVdc}, f = 45 \text{ MHz}$) | V_{out} | 1.0 | — | — | Vdc |

(1) Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

FIGURE 1 - OUTPUT VOLTAGE TEST CIRCUIT

