MPS6534

PNP General Purpose Amplifier

This device is designed for use as general purpose amplifiers and switches requiring collector currents to 500 mA. Sourced from Process 63. See PN2907A for characteristics.

Absolute Maximum Ratings*  \( TA = 25^\circ C \) unless otherwise noted

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_{CEO} )</td>
<td>Collector-Emitter Voltage</td>
<td>40</td>
<td>V</td>
</tr>
<tr>
<td>( V_{CBO} )</td>
<td>Collector-Base Voltage</td>
<td>40</td>
<td>V</td>
</tr>
<tr>
<td>( V_{EB} )</td>
<td>Emitter-Base Voltage</td>
<td>4.0</td>
<td>V</td>
</tr>
<tr>
<td>( I_C )</td>
<td>Collector Current - Continuous</td>
<td>800</td>
<td>mA</td>
</tr>
<tr>
<td>( T_{J, T_{stg}} )</td>
<td>Operating and Storage Junction Temperature Range</td>
<td>-55 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

**NOTES:**
1) These ratings are based on a maximum junction temperature of 150 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics  \( TA = 25^\circ C \) unless otherwise noted

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Characteristic</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P_D )</td>
<td>Total Device Dissipation</td>
<td>625</td>
<td>mW</td>
</tr>
<tr>
<td></td>
<td>Derate above 25°C</td>
<td>5.0</td>
<td>mW/°C</td>
</tr>
<tr>
<td>( R_{jc} )</td>
<td>Thermal Resistance, Junction to Case</td>
<td>83.3</td>
<td>°C/W</td>
</tr>
<tr>
<td>( R_{ja} )</td>
<td>Thermal Resistance, Junction to Ambient</td>
<td>200</td>
<td>°C/W</td>
</tr>
</tbody>
</table>
## Electrical Characteristics

**TA = 25°C unless otherwise noted**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter Description</th>
<th>Test Conditions</th>
<th>Min</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OFF CHARACTERISTICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V(BR)CEO</td>
<td>Collector-Emitter Breakdown Voltage*</td>
<td>I&lt;sub&gt;C&lt;/sub&gt; = 10 mA, I&lt;sub&gt;B&lt;/sub&gt; = 0</td>
<td>40</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>V(BR)CBO</td>
<td>Collector-Base Breakdown Voltage</td>
<td>I&lt;sub&gt;C&lt;/sub&gt; = 10 µA, I&lt;sub&gt;B&lt;/sub&gt; = 0</td>
<td>40</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>V(BR)EBO</td>
<td>Emitter-Base Breakdown Voltage</td>
<td>I&lt;sub&gt;E&lt;/sub&gt; = 10 µA, I&lt;sub&gt;E&lt;/sub&gt; = 0</td>
<td>4.0</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>I(CBO)</td>
<td>Collector Cutoff Current</td>
<td>V&lt;sub&gt;CB&lt;/sub&gt; = 30 V, I&lt;sub&gt;E&lt;/sub&gt; = 0</td>
<td>50</td>
<td></td>
<td>nA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V&lt;sub&gt;CB&lt;/sub&gt; = 30 V, I&lt;sub&gt;E&lt;/sub&gt; = 0, T&lt;sub&gt;A&lt;/sub&gt; = 60 °C</td>
<td>2.0</td>
<td></td>
<td>µA</td>
</tr>
<tr>
<td><strong>ON CHARACTERISTICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h&lt;sub&gt;FE&lt;/sub&gt;</td>
<td>DC Current Gain</td>
<td>V&lt;sub&gt;CE&lt;/sub&gt; = 1.0 V, I&lt;sub&gt;C&lt;/sub&gt; = 10 mA</td>
<td>60</td>
<td>270</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>V&lt;sub&gt;CE&lt;/sub&gt; = 1.0 V, I&lt;sub&gt;C&lt;/sub&gt; = 100 mA</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>V&lt;sub&gt;CE&lt;/sub&gt; = 10 V, I&lt;sub&gt;C&lt;/sub&gt; = 500 mA</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V(CE(sat))</td>
<td>Collector-Emitter Saturation Voltage</td>
<td>I&lt;sub&gt;C&lt;/sub&gt; = 100 mA, I&lt;sub&gt;B&lt;/sub&gt; = 10 mA</td>
<td>0.3</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>V(BE(sat))</td>
<td>Base-Emitter Saturation Voltage</td>
<td>I&lt;sub&gt;C&lt;/sub&gt; = 100 mA, I&lt;sub&gt;B&lt;/sub&gt; = 10 mA</td>
<td>1.0</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td><strong>SMALL SIGNAL CHARACTERISTICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C&lt;sub&gt;OB&lt;/sub&gt;</td>
<td>Output Capacitance</td>
<td>V&lt;sub&gt;CB&lt;/sub&gt; = 10 V, f = 1.0 MHz</td>
<td>6.0</td>
<td></td>
<td>pF</td>
</tr>
</tbody>
</table>

*Pulse Test: Pulse Width ≤ 300 µs, Duty Cycle ≤ 2.0%*
TO-92 Tape and Reel Data

TO-92 Packaging
Configuration: Figure 1.0

TO-92 TNR/AMMO PACKING INFORMATION

<table>
<thead>
<tr>
<th>Packing Style</th>
<th>Quantity</th>
<th>EOL code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reel A</td>
<td>2,000</td>
<td>D8Z</td>
</tr>
<tr>
<td>E</td>
<td>2,000</td>
<td>D7Z</td>
</tr>
<tr>
<td>Ammo M</td>
<td>2,000</td>
<td>D1AZ</td>
</tr>
<tr>
<td>P</td>
<td>2,000</td>
<td>D5Z</td>
</tr>
</tbody>
</table>

Unit weight:
- Real: 0.22 gm
- Ammo: 1.02 kg
Max quantity per intermediate box: 10,000 units

BULK OPTION
See Bulk Packing Information table

Tape and Reel Option
See Fig 2.0 for various Reeling Styles

Ammo Pack Option
See Fig 3.0 for 2 Ammo Pack Options

(94 (NON PROELECTRON SERIES), 96 L34Z)
TO-92 STANDARD STRAIGHT FOR: PKG 94 (PROELECTRON SERIES: BXXX, 8XXX, BSRXXX), 97, 98
NO LEADCLIP 2.0 K / BOX

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TO-92 Reeling Style
Configuration: Figure 2.0

Machine Option “A” (H)
- Style “A”, D26Z, D70Z (s/h)
- FIRST WIRE OFF IS EMITTER
- ADHESIVE TAPE IS ON THE TOP SIDE
- FLAT OF TRANSISTOR IS ON BOTTOM

Machine Option “E” (J)
- Style “E”, D27Z, D71Z (s/h)
- FIRST WIRE OFF IS COLLECTOR
- ADHESIVE TAPE IS ON THE TOP SIDE
- FLAT OF TRANSISTOR IS ON TOP

TO-92 Radial Ammo Packaging
Configuration: Figure 3.0

ORDER STYLE
D74Z (M)
- FIRST WIRE OFF IS EMITTER (ON PKG. 92)
- ADHESIVE TAPE IS ON BOTTOM SIDE
- FLAT OF TRANSISTOR IS ON BOTTOM

ORDER STYLE
D75Z (P)
- FIRST WIRE OFF IS COLLECTOR (ON PKG. 92)
- ADHESIVE TAPE IS ON BOTTOM SIDE
- FLAT OF TRANSISTOR IS ON TOP
TO-92 Tape and Reel Data, continued

TO-92 Tape and Reel Taping
Dimension Configuration: Figure 4.0

User Direction of Feed

TO-92 Reel Configuration: Figure 5.0

Note: All dimensions are in inches.

ITEM DESCRIPTION SYMBOL MINIMUM MAXIMUM
Reel Diameter D1 13.975 14.025
 Arbor Diameter (Standard) D2 1.160 1.300
 Arbor Diameter (Small Hole) D2 0.650 0.700
 Core Diameter D3 3.100 3.300
 Hub Recess Inner Diameter D4 2.700 3.100
 Hub Recess Depth W1 0.370 0.570
 Flange to Flange Inner Width W2 1.660 1.690
 Hub to Hub Center Width W3 2.090

Note: All dimensions are inches.
TO-92 Package Dimensions

TO-92 (FS PKG Code 92, 94, 96)

Scale 1:1 on letter size paper
Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.1977

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DOME™  ISOPLANAR™  Quiet Series™
E²CMOS™  MICROWIRE™  SILENT SWITCHER®
EnSigna™  OPTOLOGIC™  SMART START™
FACT™  OPTOPLANAR™  SuperSOT™-3
FACT Quiet Series™  PACMAN™  SuperSOT™-6
FAST®  POP™  SuperSOT™-8

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PRODUCT STATUS DEFINITIONS

Definition of Terms

<table>
<thead>
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<th>Datasheet Identification</th>
<th>Product Status</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advance Information</td>
<td>Formative or In Design</td>
<td>This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.</td>
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