



IMZ1AS-AU

Complementary Dual General Purpose Transistor

Voltage

50V /
-50V

Current

0.15 /
-0.15A

Features

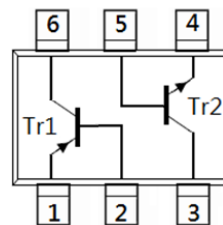
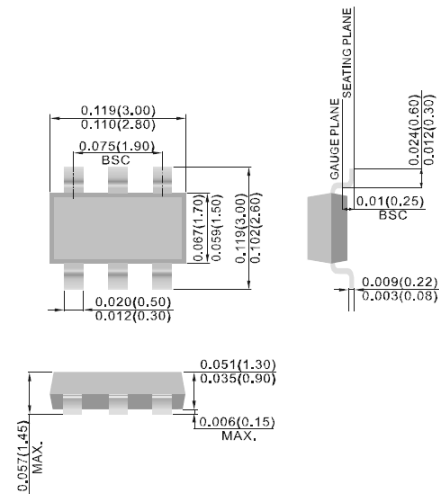
- Silicon PNP/NPN epitaxial type
- Tr1: PNP
Tr2: NPN
- Ideal for Low Power Amplification and Switching
- AEC-Q101 qualified
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case: SOT-23 6L Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0005 ounces, 0.014 grams
- Marking: 1AS

SOT-23 6L

Unit: inch(mm)



Pin Assignment

1. Tr1 (PNP) Emitter
2. Tr1 (PNP) Base
3. Tr2 (NPN) Collector
4. Tr2 (NPN) Emitter
5. Tr2 (NPN) Base
6. Tr1 (PNP) Collector

Maximum Ratings and Thermal Characteristics (T_A=25 °C unless otherwise noted)

| PARAMETER | SYMBOL | Tr1 | Tr2 | UNITS |
|---|-----------------------------------|---------|------|-------|
| Collector-Base Voltage | V _{CBO} | 50 | -50 | V |
| Collector-Emitter Voltage | V _{CEO} | 60 | -60 | |
| Emitter-Base Voltage | V _{EBO} | 7 | -6 | |
| Collector Current (DC) | I _C | 150 | -150 | mA |
| Total Power Dissipation | P _D | 300 | | mW |
| Operating Junction and Storage Temperature Range | T _J , T _{STG} | -55~150 | | °C |
| Typical Thermal Resistance from Junction to Ambient ^(Note) | R _{θJA} | 100 | | °C/W |

Note: Mounted on FR4 with 2oz. PCB at 1 inch square copper pad.



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Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNITS |
|--------------------------------------|---------------|--|------|------|------|-------|
| Tr1 (PNP) | | | | | | |
| OFF Characteristics | | | | | | |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | $I_C = -1\text{mA}, I_B = 0\text{A}$ | -50 | - | - | V |
| Collector-Base Breakdown Voltage | BV_{CBO} | $I_C = -50\mu\text{A}, I_E = 0\text{A}$ | -60 | - | - | |
| Emitter-Base Breakdown Voltage | BV_{EBO} | $I_E = -50\mu\text{A}, I_C = 0\text{A}$ | -6 | - | - | |
| Collector-Base Cutoff Current | I_{CBO} | $V_{CB} = -60\text{V}, I_E = 0\text{A}$ | - | - | -100 | nA |
| Emitter-Base Cutoff Current | I_{EBO} | $V_{EB} = -6\text{V}$ | - | - | -100 | |
| ON characteristics | | | | | | |
| DC Current Gain | h_{FE} | $V_{CE} = -6\text{V}, I_C = -1\text{mA}$ | 120 | - | 560 | - |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C = -50\text{mA}, I_B = -5\text{mA}$ | - | -150 | -500 | mV |
| Transition Frequency | f_T | $I_E = -2\text{mA}, V_{CE} = -12\text{V}$ $f = 100\text{MHz}$ | - | 140 | - | MHz |
| Collector Output Capacitance | C_{OB} | $V_{CB} = -12\text{V}, I_E = 0\text{A}$, $f = 100\text{MHz}$ | - | 4 | 5 | pF |
| Tr2 (NPN) | | | | | | |
| OFF Characteristics | | | | | | |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | $I_C = 1\text{mA}, I_B = 0\text{A}$ | 50 | - | - | V |
| Collector-Base Breakdown Voltage | BV_{CBO} | $I_C = 50\mu\text{A}, I_E = 0\text{A}$ | 60 | - | - | |
| Emitter-Base Breakdown Voltage | BV_{EBO} | $I_E = 50\mu\text{A}, I_C = 0\text{A}$ | 7 | - | - | |
| Collector-Base Cutoff Current | I_{CBO} | $V_{CB} = 60\text{V}, I_E = 0\text{A}$ | - | - | 100 | nA |
| Emitter-Base Cutoff Current | I_{EBO} | $V_{EB} = 7\text{V}$ | - | - | 100 | |
| ON characteristics | | | | | | |
| DC Current Gain | h_{FE} | $V_{CE} = 6\text{V}, I_C = 1\text{mA}$ | 120 | - | 560 | - |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C = 50\text{mA}, I_B = 5\text{mA}$ | - | 100 | 400 | mV |
| Transition Frequency | f_T | $I_E = 2\text{mA}, V_{CE} = 12\text{V}$ $f = 100\text{MHz}$ | - | 180 | - | MHz |
| Collector Output Capacitance | C_{OB} | $V_{CB} = 12\text{V}, I_E = 0\text{A}$, $f = 100\text{MHz}$ | - | 2 | 3.5 | pF |

Note: 1. Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$



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TYPICAL CHARACTERISTIC CURVES

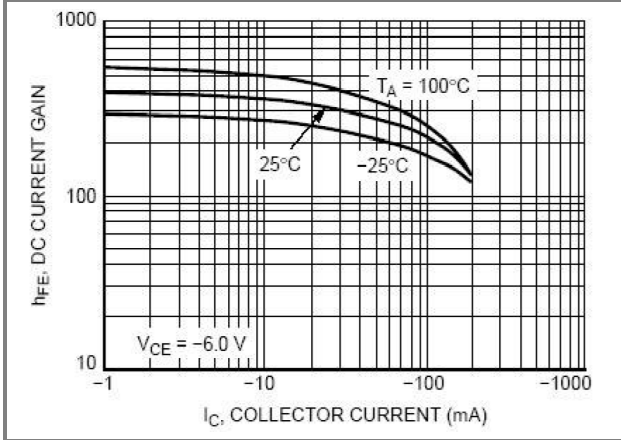


Fig.1 DC Current Gain

Tr1 (PNP)

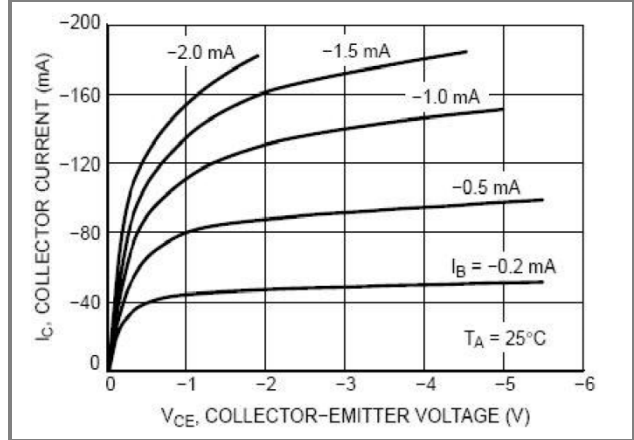


Fig.2 Collector Current

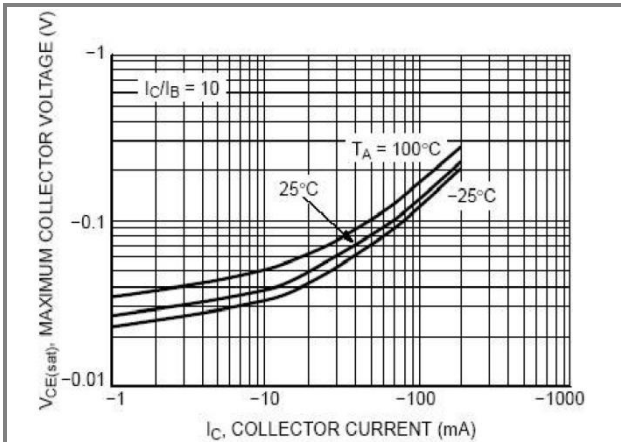


Fig.3 Collector-Emitter Saturation Voltage

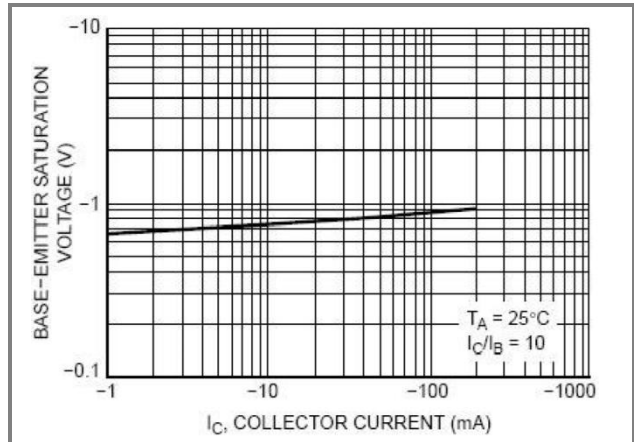


Fig.4 Base-Emitter Saturation Voltage

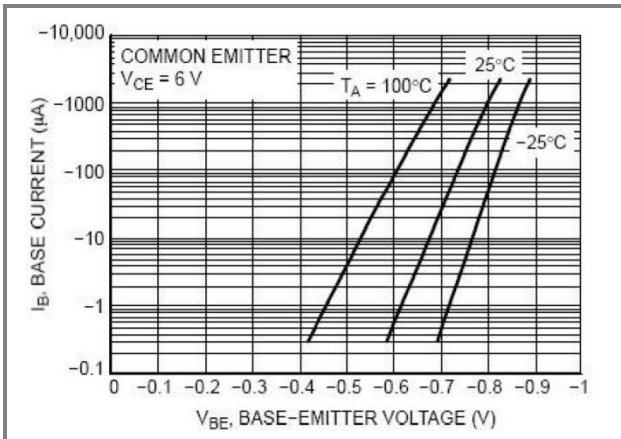


Fig.5 Base-Emitter Voltage



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TYPICAL CHARACTERISTIC CURVES

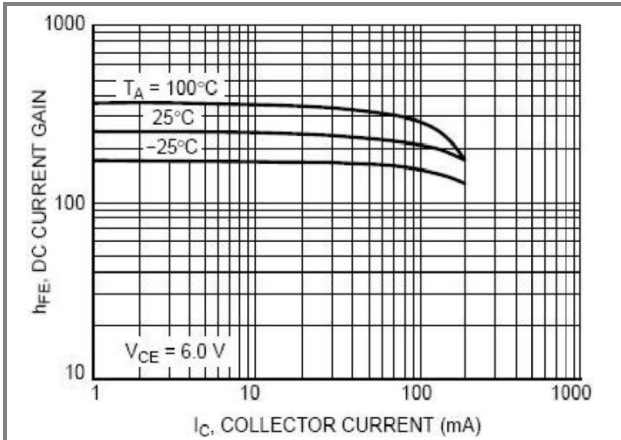


Fig.6 DC Current Gain

Tr2 (NPN)

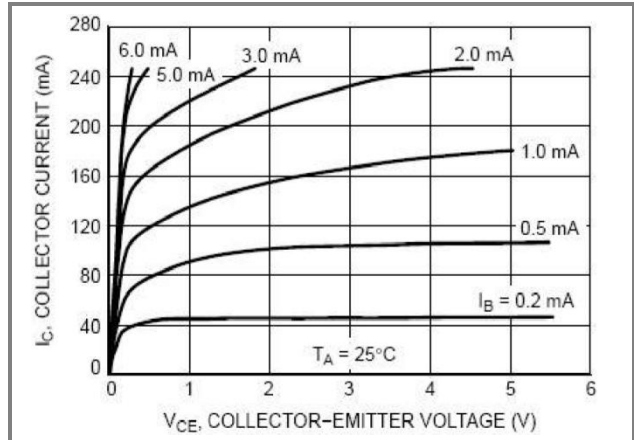


Fig.7 Collector Current

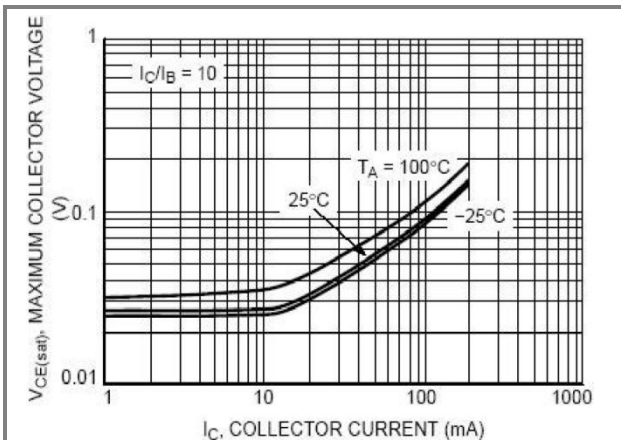


Fig.8 Collector-Emitter Saturation Voltage

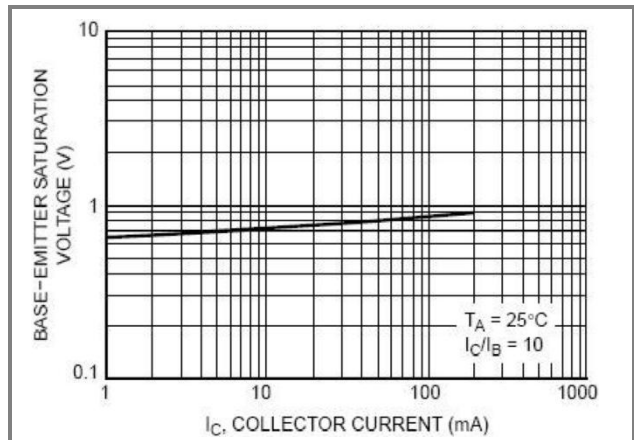


Fig.9 Base-Emitter Saturation Voltage

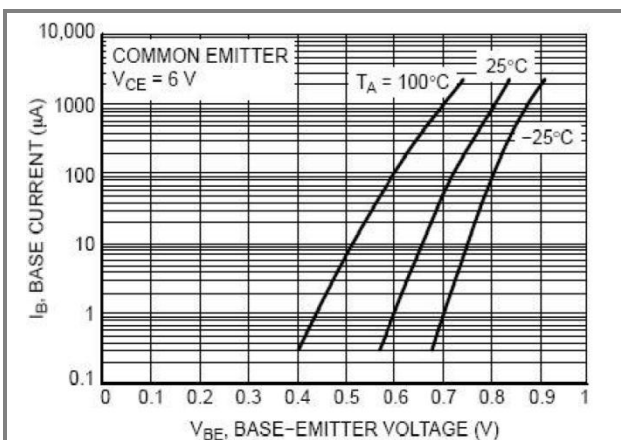


Fig.10 Base-Emitter Voltage

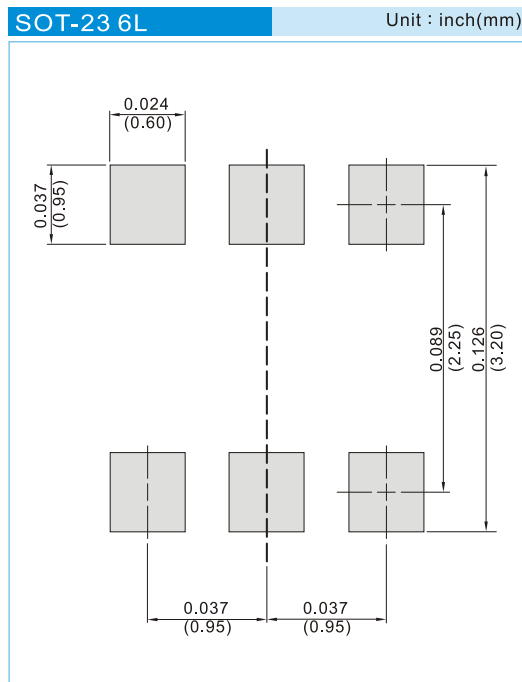


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Part No Packing Code Version

| Part No Packing Code | Package Type | Packing Type | Marking | Version |
|----------------------|--------------|------------------|---------|--------------|
| IMZ1AS-AU_S1_000A1 | SOT-23 6L | 3K pcs / 7" reel | 1AS | Halogen free |

Mounting Pad Layout





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