

High voltage discharge, High speed switching, Low Noise (–60V, –3A)

2SA2073

●Features

- 1) High speed switching. (t_f : Typ. : 20ns at $I_C = -3A$)
- 2) Low saturation voltage, typically.
(Typ. : –200mV at $I_C = -2.0A$, $I_B = -200mA$)
- 3) Strong discharge power for inductive load and capacitance load.
- 4) Low Noise.
- 5) Complements the 2SC5826.

●Applications

High speed switching, Low noise

●Structure

PNP silicon epitaxial planar transistor

●Packaging specifications

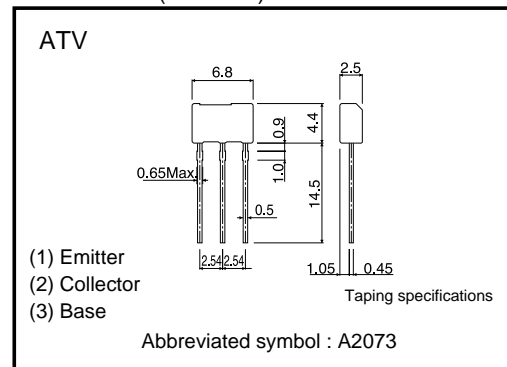
| Type | Package | Taping |
|---------|------------------------------|--------|
| | Code | TV2 |
| | Basic ordering unit (pieces) | 2500 |
| 2SA2073 | | ○ |

●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit | |
|------------------------------|-----------|------------|------|-----|
| Collector-base voltage | V_{CB0} | –60 | V | |
| Collector-emitter voltage | V_{CE0} | –60 | V | |
| Emitter-base voltage | V_{EB0} | –6 | V | |
| Collector current | DC | I_C | –3 | A |
| | Pulsed | I_{CP} | –6 | A * |
| Power dissipation | P_C | 1.0 | W | |
| Junction temperature | t_j | 150 | °C | |
| Range of storage temperature | t_{stg} | –55 to 150 | °C | |

*Pw=10ms

●Dimensions (Unit : mm)



Transistors

●Electrical characteristics (Ta=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|--------------------------------------|---------------|------|------|------|---------------|--|
| Collector-emitter breakdown voltage | BV_{CEO} | -60 | - | - | V | $I_C = -1\text{mA}$ |
| Collector-base breakdown voltage | BV_{CBO} | -60 | - | - | V | $I_C = -100\mu\text{A}$ |
| Emitter-base breakdown voltage | BV_{EBO} | -6 | - | - | V | $I_E = -100\mu\text{A}$ |
| Collector cut-off current | I_{CBO} | - | - | -1.0 | μA | $V_{CB} = -40\text{V}$ |
| Emitter cut-off current | I_{EBO} | - | - | -1.0 | μA | $V_{EB} = -4\text{V}$ |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | - | -200 | -500 | mV | $I_C = -2.0\text{A}$ $I_B = -200\text{mA}$ |
| DC current gain | h_{FE} | 120 | - | 270 | - | $V_{CE} = -2\text{V}$ $I_C = -100\text{mA}$ |
| Transistor frequency | f_T | - | 200 | - | MHz | $V_{CE} = -10\text{V}$ $I_E = 100\text{mA}$ $f = 10\text{MHz}$ |
| Collector output capacitance | C_{ob} | - | 40 | - | pF | $V_{CB} = -10\text{V}$ $I_E = 0\text{mA}$ $f = 1\text{MHz}$ |
| Turn-on time | t_{on} | - | 20 | - | ns | $I_C = -3\text{A}$ $I_{B1} = -300\text{mA}$ |
| Storage time | t_{stg} | - | 130 | - | ns | $I_{B2} = 300\text{mA}$ |
| Fall time | t_f | - | 20 | - | ns | $V_{CC} = -25\text{V}$ |

*1 Single pulse

*2 See switching characteristics measurement circuits

● h_{FE} RANK

| |
|---------|
| Q |
| 120-270 |

Transistors

●Electrical characteristics curves

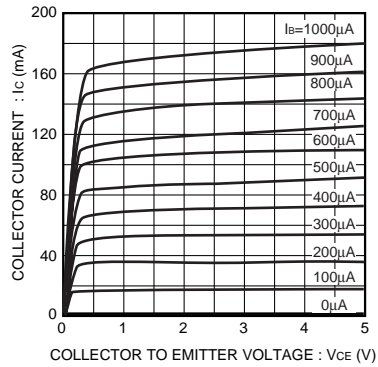


Fig.1 Typical output characteristics

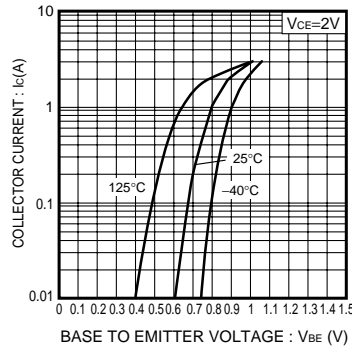


Fig.2 Grounded emitter propagation characteristics

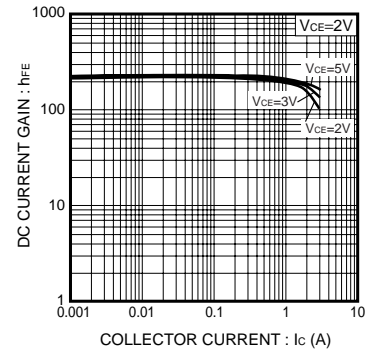


Fig.3 DC current gain vs. collector current (I)

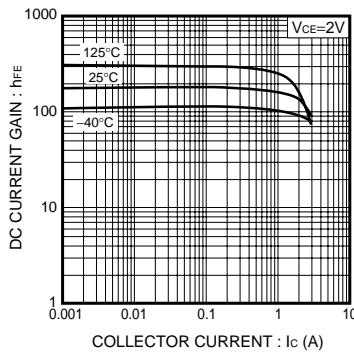


Fig.4 DC current gain vs. collector current (II)

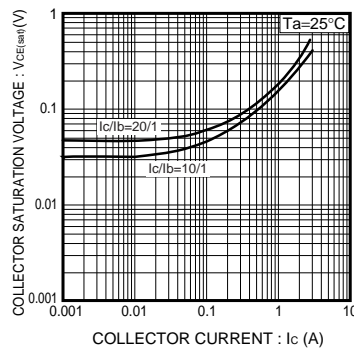


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

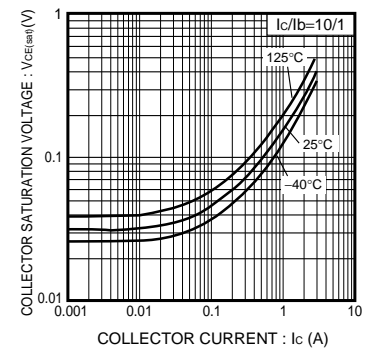


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

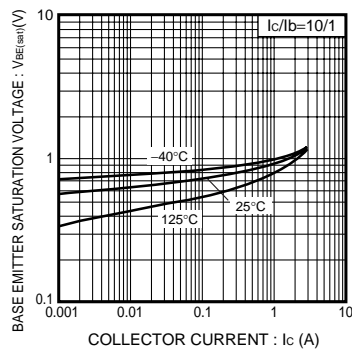


Fig.7 Base-emitter saturation voltage vs. collector current

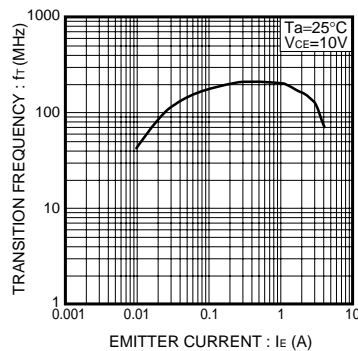


Fig.8 Transition frequency

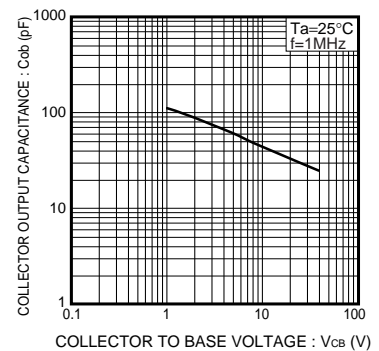


Fig.9 Collector output capacitance

Transistors

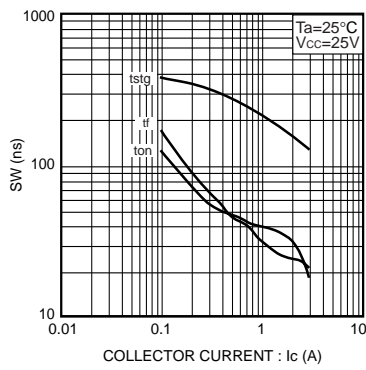


Fig.3 Switching Time

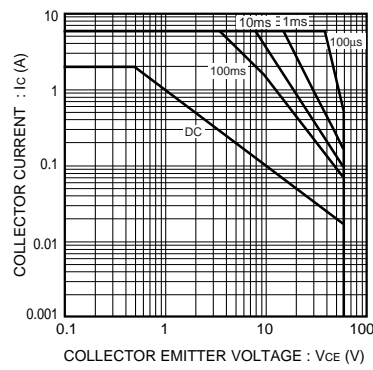
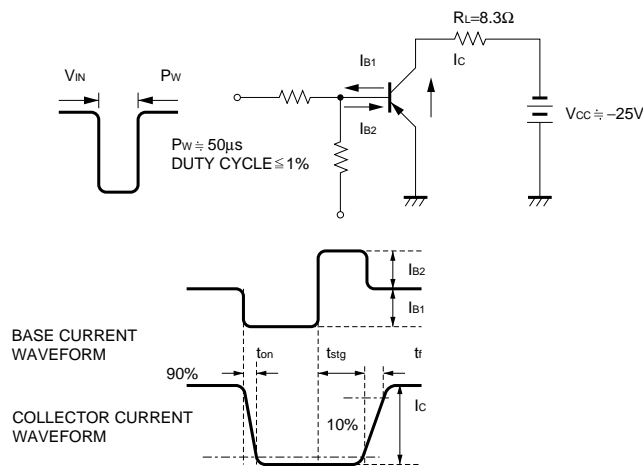


Fig.11 Safe operating area

●Switching characteristics measurement circuits



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