

**2SD1628****High-Current Switching Applications**

An ON Semiconductor Company

**Applications**

- Strobe DC-DC converters, relay drivers, hammer drivers, lamp drivers, motor drovers.

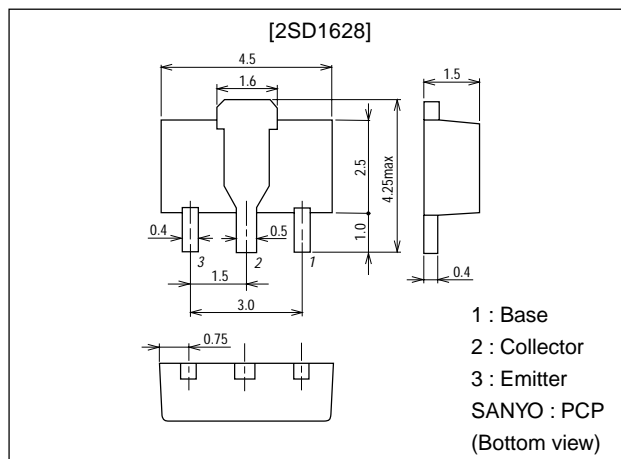
**Features**

- Low saturation voltage.
- High  $h_{FE}$ .
- Large current capacity.
- Very small size making it easy to provide high-density, small-sized hybrid IC's.

**Package Dimensions**

unit:mm

2038A

**Specifications****Absolute Maximum Ratings at  $T_a = 25^\circ\text{C}$** 

| Parameter                    | Symbol    | Conditions   | Ratings     | Unit             |
|------------------------------|-----------|--|-------------|------------------|
| Collector-to-Base Voltage    | $V_{CB0}$ |  | 60          | V                |
| Collector-to-Emitter Voltage | $V_{CEO}$ |  | 20          | V                |
| Emitter-to-Base Voltage      | $V_{EBO}$ |  | 6           | V                |
| Collector Current            | $I_C$     |  | 5           | A                |
| Collector Current (Pulse)    | $I_{CP}$  |  | 8           | A                |
| Collector Dissipation        | $P_C$     |  | 500         | mW               |
|                              |           | Mounted on ceramic board (250mm <sup>2</sup> ×0.8mm) | 1.5         | W                |
| Junction Temperature         | $T_J$     |  | 150         | $^\circ\text{C}$ |
| Storage Temperature          | $T_{stg}$ |  | -55 to +150 | $^\circ\text{C}$ |

**Electrical Characteristics at  $T_a = 25^\circ\text{C}$** 

| Parameter                | Symbol    | Conditions                           | Ratings |     |      | Unit |
|--------------------------|-----------|--------------------------------------|---------|-----|------|------|
|                          |           |                                      | min     | typ | max  |      |
| Collector Cutoff Current | $I_{CBO}$ | $V_{CB}=50\text{V}, I_E=0$           |         |     | 100  | nA   |
| Emitter Cutoff Current   | $I_{EBO}$ | $V_{EB}=5\text{V}, I_C=0$            |         |     | 100  | nA   |
| DC Current Gain          | $h_{FE1}$ | $V_{CE}=2\text{V}, I_C=0.5\text{A}$  | 120*    |     | 560* |      |
|                          | $h_{FE2}$ | $V_{CE}=2\text{V}, I_C=3\text{A}$    | 95      |     |      |      |
| Gain-Bandwidth Product   | $f_T$     | $V_{CE}=10\text{V}, I_C=50\text{mA}$ |         | 120 |      | MHz  |
| Output Capacitance       | $C_{ob}$  | $V_{CB}=10\text{V}, f=1\text{MHz}$   |         | 45  |      | pF   |

\* The 2SD1628 is classified by 0.5A  $h_{FE}$  as follows :  
Marking : DK

|     |   |     |     |   |     |     |   |     |
|-----|---|-----|-----|---|-----|-----|---|-----|
| 120 | E | 200 | 160 | F | 320 | 280 | G | 560 |
|-----|---|-----|-----|---|-----|-----|---|-----|

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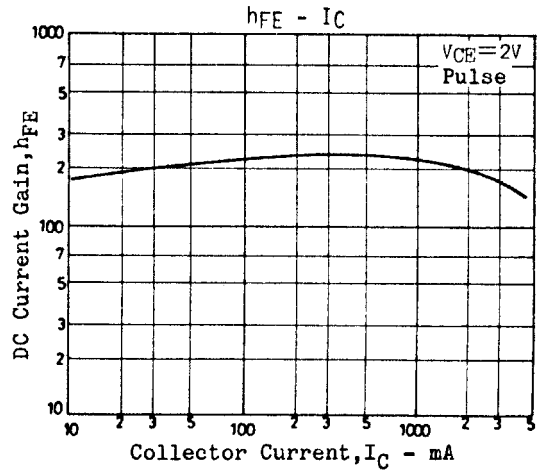
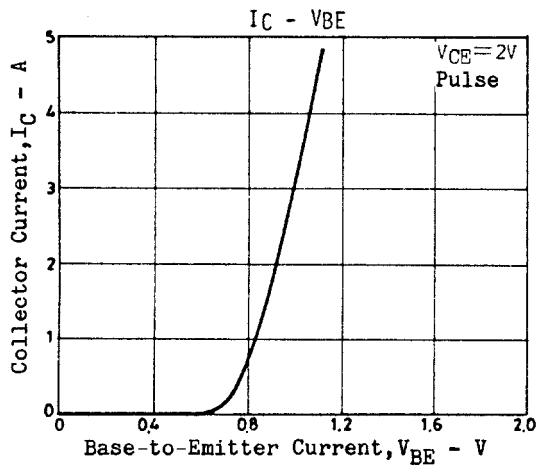
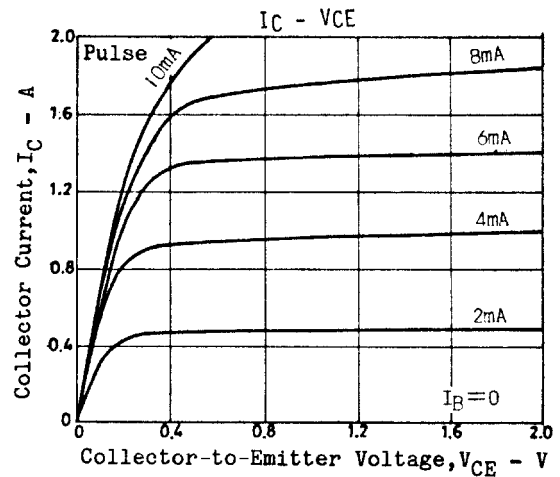
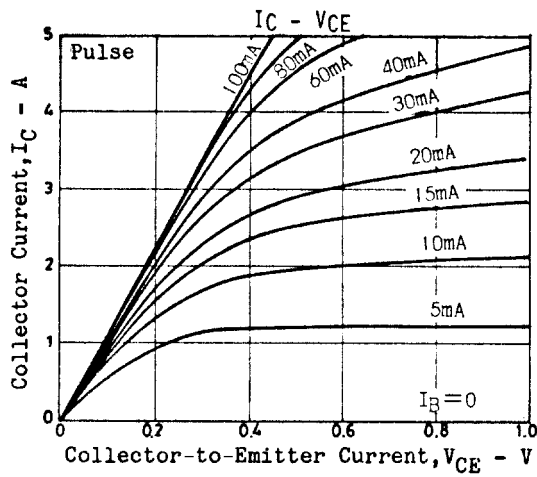
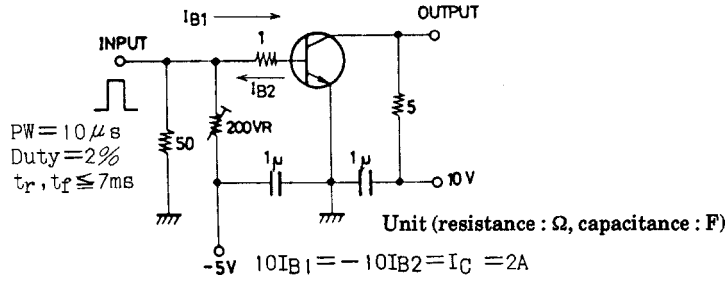
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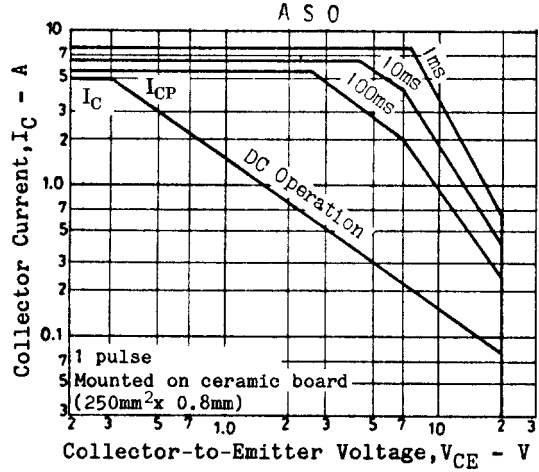
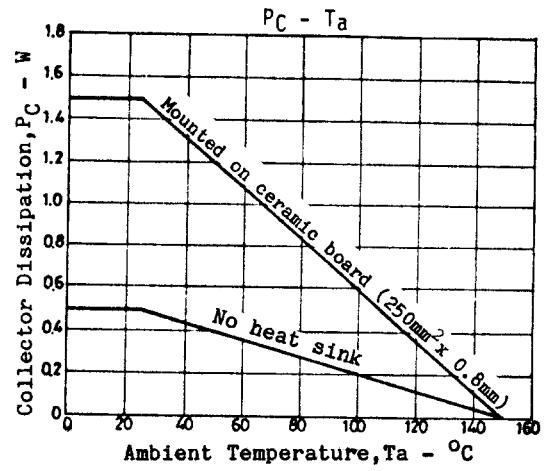
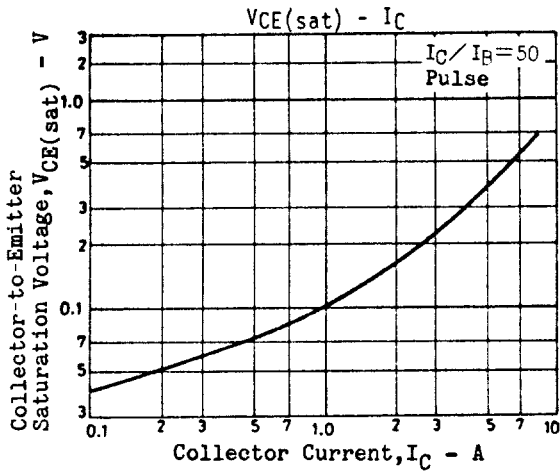
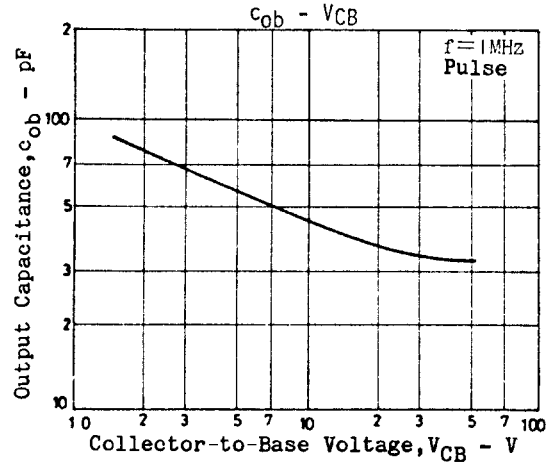
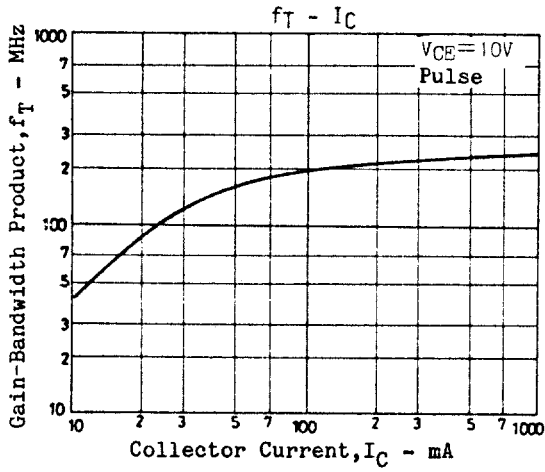
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| Parameter                               | Symbol        | Conditions                  | Ratings |     |     | Unit |
|---|---------------|-----------------------------|---------|-----|-----|------|
|   |               |                             | min     | typ | max |      |
| Collector-to-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=3A, I_B=60mA$          |         |     | 500 | mV   |
| Base-to-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C=3A, I_B=60mA$          |         |     | 1.5 | V    |
| Turn-ON Time                            | $t_{on}$      | See specified Test Circuit. |         | 30  |     | ns   |
| Storage Time                            | $t_{stg}$     | See specified Test Circuit. |         | 300 |     | ns   |
| Fall Time                               | $t_f$         | See specified Test Circuit. |         | 40  |     | ns   |

## Switching Time Test Circuit



# 2SD1628



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