

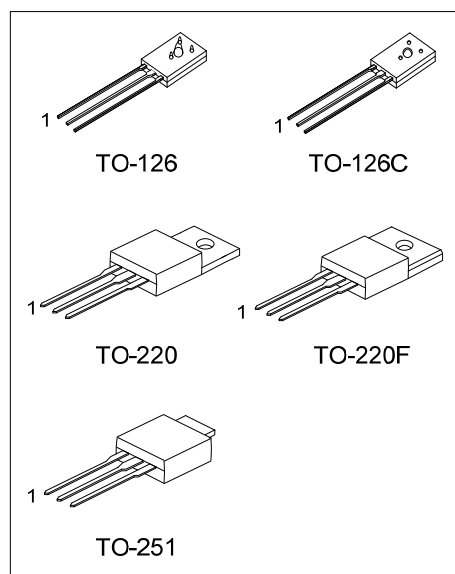
**2SC5353B****NPN SILICON TRANSISTOR****HIGH VOLTAGE NPN  
TRANSISTOR**■ **DESCRIPTION**

Switching Regulator and High Voltage Switching Applications  
High-Speed DC-DC Converter Applications

■ **FEATURES**

\* Excellent switching times:  $t_R = 0.7\mu s_{(MAX)}$ ,  $t_F = 0.5\mu s_{(MAX)}$

\* High collectors breakdown voltage:  $V_{CEO} = 750V$

■ **ORDERING INFORMATION**

| Ordering Number |                 | Package | Pin Assignment |   |   | Packing |
|-----------------|-----------------|---------|----------------|---|---|---------|
| Lead Free       | Halogen Free    |         | 1              | 2 | 3 |         |
| 2SC5353BL-T60-K | 2SC5353BG-T60-K | TO-126  | B              | C | E | Bulk    |
| 2SC5353BL-T6C-K | 2SC5353BG-T6C-K | TO-126C | B              | C | E | Bulk    |
| 2SC5353BL-TA3-T | 2SC5353BG-TA3-T | TO-220  | B              | C | E | Tube    |
| 2SC5353BL-TF3-T | 2SC5353BG-TF3-T | TO-220F | B              | C | E | Tube    |
| 2SC5353BL-TM3-T | 2SC5353BG-TM3-T | TO-251  | B              | C | E | Tube    |

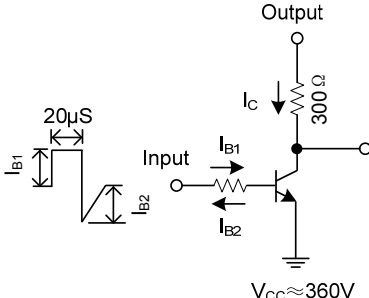
|  |                  |                                             |
|--|------------------|---------------------------------------------|
|  | (1) Packing Type | (1) K: Bulk, T: Tube                        |
|  | (2) Package Type | (2) T60: TO-126, T6C: TO-126C, TA3: TO-220, |
|  | (3) Lead Plating | TF3: TO-220F, TM3: TO-251                   |
|  |                  | (3) G: Halogen Free, L: Lead Free Plating   |

### ■ ABSOLUTE MAXIMUM RATINGS ( $T_C = 25^\circ\text{C}$ )

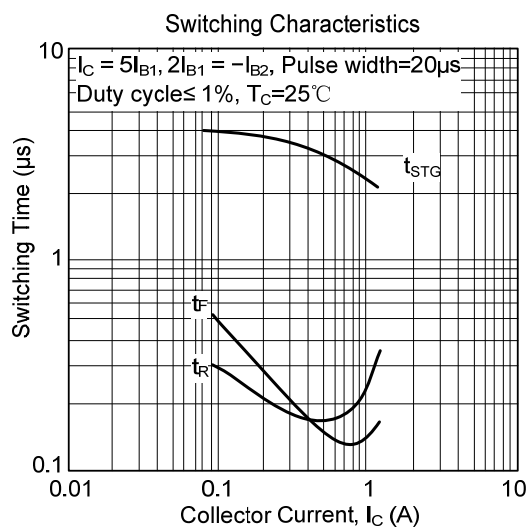
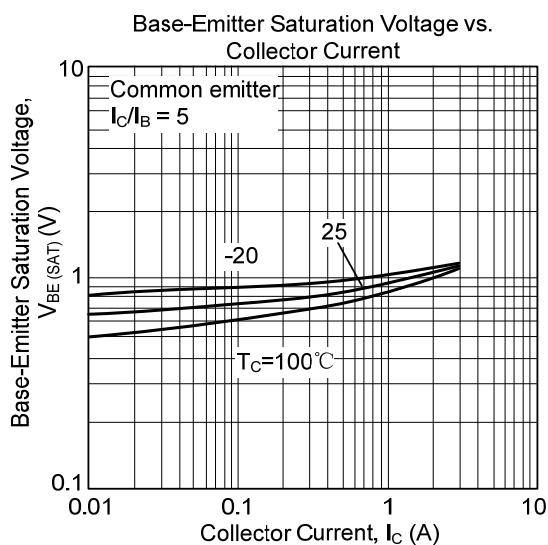
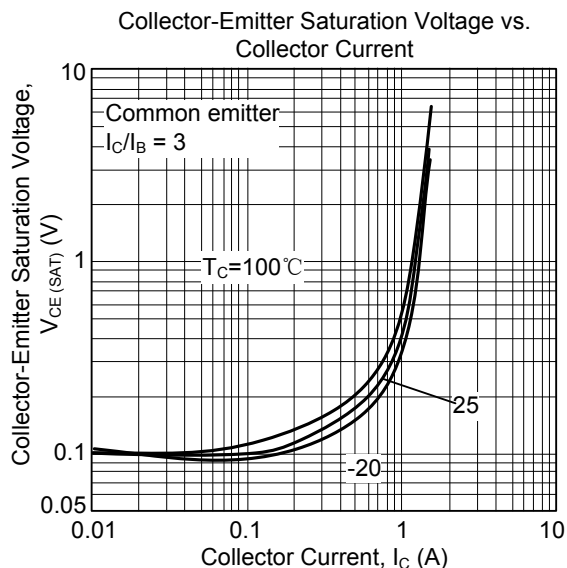
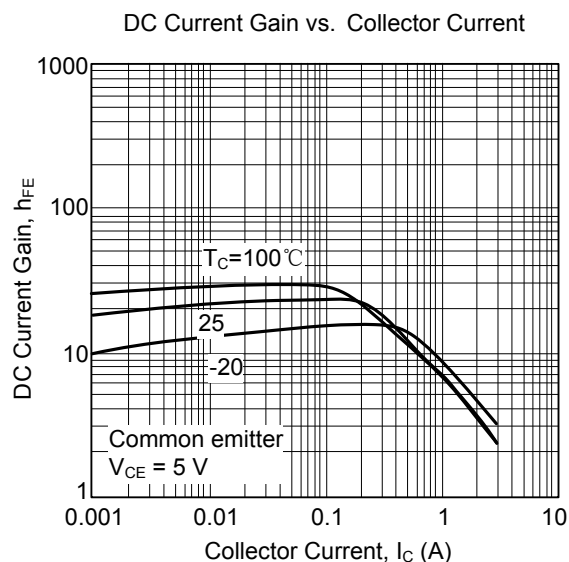
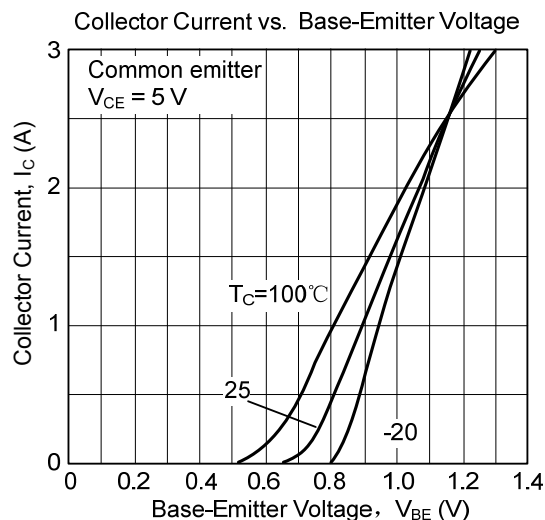
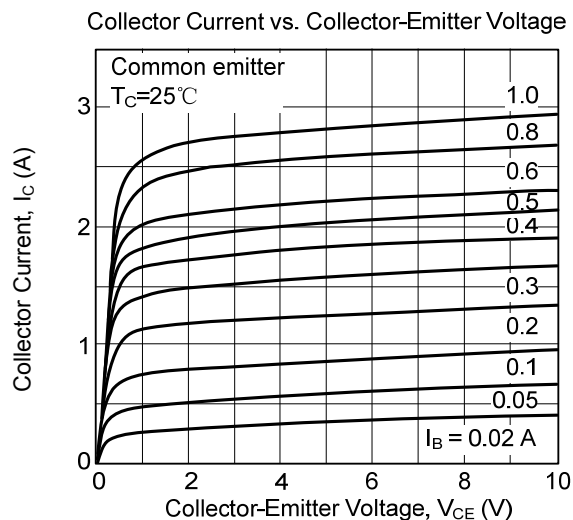
| PARAMETER                   |                        | SYMBOL    | RATINGS    | UNIT             |
|-----------------------------|------------------------|-----------|------------|------------------|
| Collector-Base Voltage      |                        | $V_{CBO}$ | 900        | V                |
| Collector-Emitter Voltage   |                        | $V_{CEO}$ | 750        | V                |
| Emitter-Base Voltage        |                        | $V_{EBO}$ | 7          | V                |
| Collector Current           | DC                     | $I_C$     | 3          | A                |
|                             | Pulse                  | $I_{CP}$  | 5          | A                |
| Base Current                |                        | $I_B$     | 1          | A                |
| Collector Power Dissipation | TO-220F/TO-126/TO-126C | $P_D$     | 20         | W                |
|                             | TO-220/TO-251          |           | 25         | W                |
| Junction Temperature        |                        | $T_J$     | +150       | $^\circ\text{C}$ |
| Storage Temperature         |                        | $T_{STG}$ | -40 ~ +150 | $^\circ\text{C}$ |

Note Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

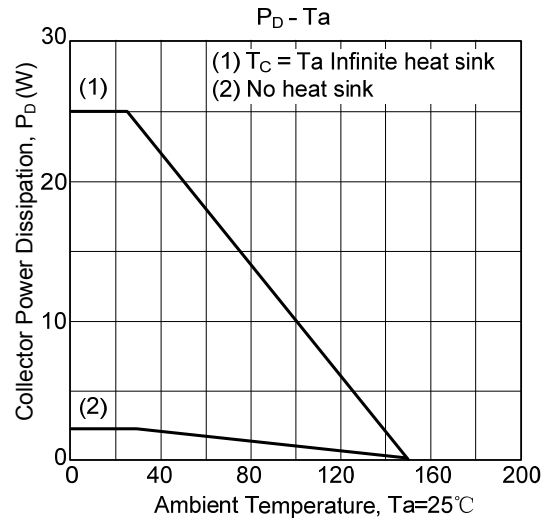
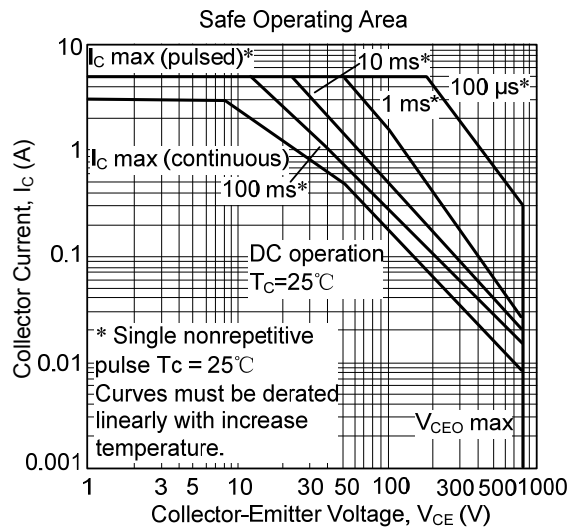
### ■ ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ )

| PARAMETER                            |              | SYMBOL        | TEST CONDITIONS                                                                                                                                                                                  | MIN | TYP | MAX | UNIT          |
|--------------------------------------|--------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|---------------|
| Collector-Base Breakdown Voltage     |              | $BV_{CBO}$    | $I_C = 1 \text{ mA}, I_E = 0$                                                                                                                                                                    | 900 |     |     | V             |
| Collector-Emitter Breakdown Voltage  |              | $BV_{CEO}$    | $I_C = 10 \text{ mA}, I_B = 0$                                                                                                                                                                   | 750 |     |     | V             |
| Collector Cut-off Current            |              | $I_{CBO}$     | $V_{CB} = 720 \text{ V}, I_E = 0$                                                                                                                                                                |     |     | 100 | $\mu\text{A}$ |
| Emitter Cut-off Current              |              | $I_{EBO}$     | $V_{EB} = 7 \text{ V}, I_C = 0$                                                                                                                                                                  |     |     | 10  | $\mu\text{A}$ |
| DC Current Gain                      | $h_{FE1}$    |               | $V_{CE} = 5 \text{ V}, I_C = 1 \text{ mA}$                                                                                                                                                       | 10  |     |     |               |
|                                      | $h_{FE2}$    |               | $V_{CE} = 5 \text{ V}, I_C = 0.15 \text{ A}$                                                                                                                                                     | 15  |     |     |               |
| Collector-Emitter Saturation Voltage |              | $V_{CE(SAT)}$ | $I_C = 1.2 \text{ A}, I_B = 0.24 \text{ A}$                                                                                                                                                      |     |     | 1.0 | V             |
| Base-Emitter Saturation Voltage      |              | $V_{BE(SAT)}$ | $I_C = 1.2 \text{ A}, I_B = 0.24 \text{ A}$                                                                                                                                                      |     |     | 1.3 | V             |
| Switching Time                       | Rise Time    | $t_R$         |  <p><math>I_{B1} = 0.24 \text{ A}, I_{B2} = -0.48 \text{ A},</math><br/>duty cycle <math>\leq 1\%</math></p> |     |     | 0.7 | $\mu\text{S}$ |
|                                      | Storage Time | $t_{STG}$     |                                                                                                                                                                                                  |     |     | 4.0 | $\mu\text{S}$ |
|                                      | Fall Time    | $t_F$         |                                                                                                                                                                                                  |     |     | 0.5 | $\mu\text{S}$ |

### TYPICAL CHARACTERISTICS



### ■ TYPICAL CHARACTERISTICS(Cont.)



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