

## TO-263-2L Plastic-Encapsulate Diodes

Schottky Barrier Rectifier

### MAIN CHARACTERISTICS

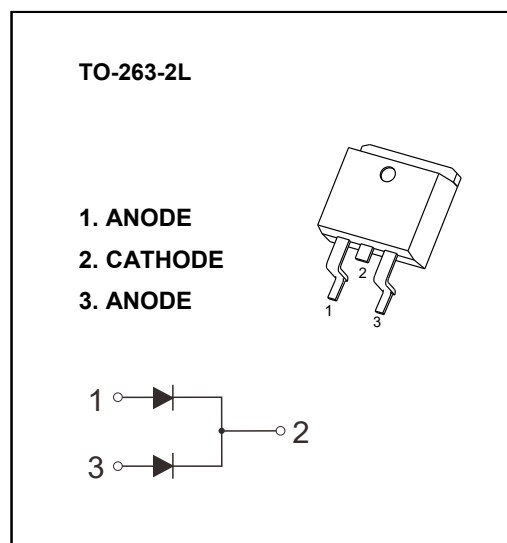
|              |                               |
|--------------|-------------------------------|
| $I_O$        | 10 (2×5) A                    |
| $V_{RRM}$    | 45 V                          |
| $T_j$        | 150 °C                        |
| $V_{F(typ)}$ | 0.48V (@ $T_j=125^{\circ}C$ ) |

### FEATURES

- Low Power Loss,High Efficiency
- Guard Ring Die Construction for Transient Protection
- High Current Capability and Low Forward Voltage Drop
- Metal Silicon Junction, Majority Carrier Conduction
- For Use In Low Voltage,High Frequency Inverters, Free Wheeling and Polarity Protection Applications

### Mechical Data

- Case: TO-263-2L (D<sup>2</sup>PAK)
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Solder plated, solderable per MIL- STD-202, Method 208
- Polarity: Color band denotes cathode end



### MAXIMUM RATINGS ( $T_a=25^{\circ}C$ unless otherwise noted )

| Symbol          | Parameter                                                        | Value    | Unit          |
|-----------------|------------------------------------------------------------------|----------|---------------|
| $V_{RRM}$       | Peak repetitive reverse voltage                                  | 45       | V             |
| $V_{RWM}$       | Working peak reverse voltage                                     |          |               |
| $V_R$           | DC blocking voltage                                              |          |               |
| $V_{R(RMS)}$    | RMS reverse voltage                                              | 31.5     | V             |
| $I_O$           | Average rectified output current                                 | 10       | A             |
| $I_{FSM}$       | Non-Repetitive peak forward surge current (8.3ms half sine wave) | 120      | A             |
| $R_{\theta JC}$ | Thermal resistance from junction to case , $T_c=25^{\circ}C$     | 2.0      | $^{\circ}C/W$ |
| $R_{\theta JA}$ | Thermal resistance from junction to ambient                      | 62.5     | $^{\circ}C/W$ |
| $T_j$           | Junction temperature                                             | 150      | $^{\circ}C$   |
| $T_{stg}$       | Storage temperature                                              | -55~+150 | $^{\circ}C$   |

### ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}C$ unless otherwise specified)

| Parameter       | Symbol     | Test conditions | Min                | Typ  | Max  | Unit    |
|-----------------|------------|-----------------|--------------------|------|------|---------|
| Reverse voltage | $V_{(BR)}$ | $I_R=0.1mA$     | 45                 |      |      | V       |
| Reverse current | $I_R$      | $V_R=45V$       | $T_j=25^{\circ}C$  | 20   | 100  | $\mu A$ |
|                 |            |                 | $T_j=125^{\circ}C$ | 20   |      | mA      |
| Forward voltage | $V_F$      | $I_F=3A$        | $T_j=25^{\circ}C$  | 0.46 |      | V       |
|                 |            |                 | $T_j=125^{\circ}C$ | 0.40 |      | V       |
|                 |            | $I_F=5A$        | $T_j=25^{\circ}C$  | 0.52 | 0.60 | V       |
|                 |            |                 | $T_j=125^{\circ}C$ | 0.48 |      | V       |

\*Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2.0\%$ .

## Typical Characteristics

FIG.1: FORWARD CURRENT DERATING CURVE

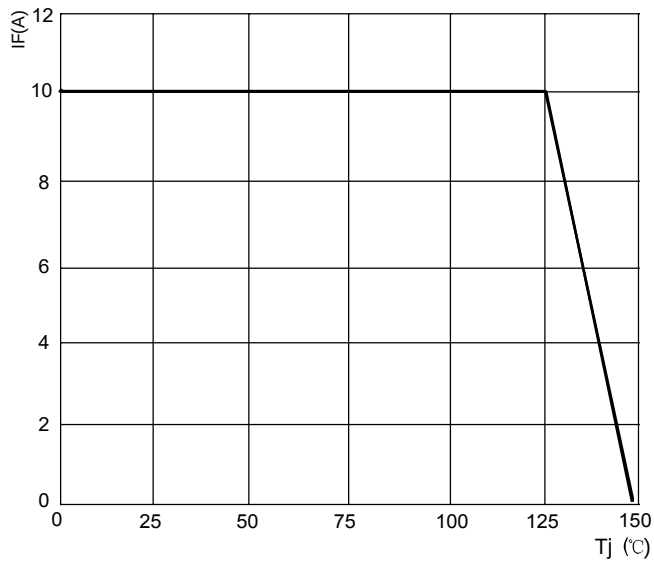


FIG.2: TYPICAL FORWARD CHARACTERISTICS

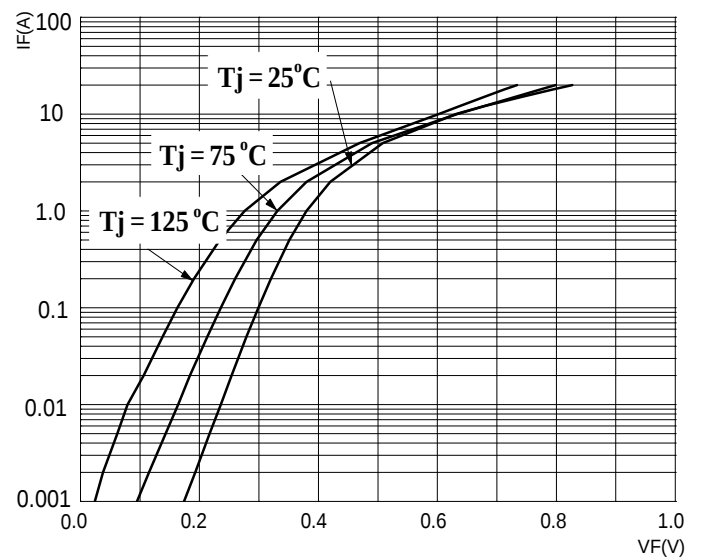


FIG.3: TOTAL CAPACITANCE DERATING CURVE

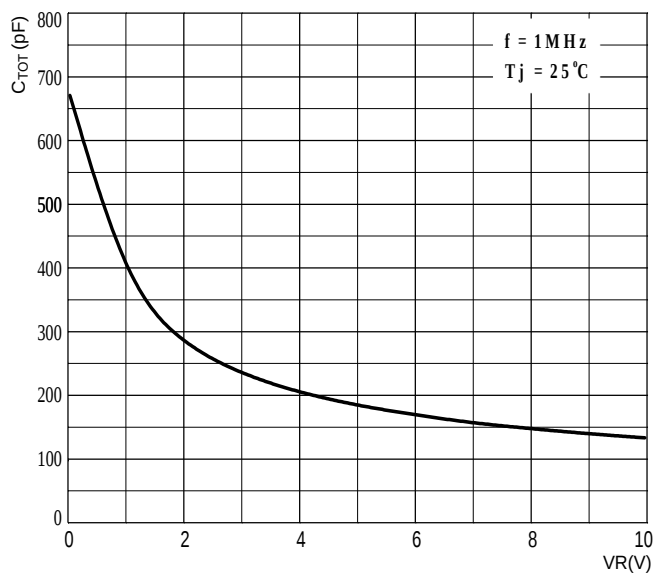
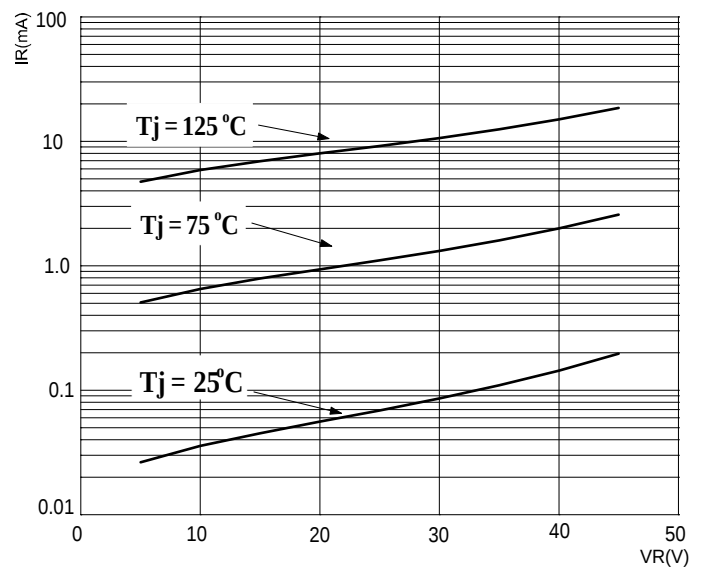
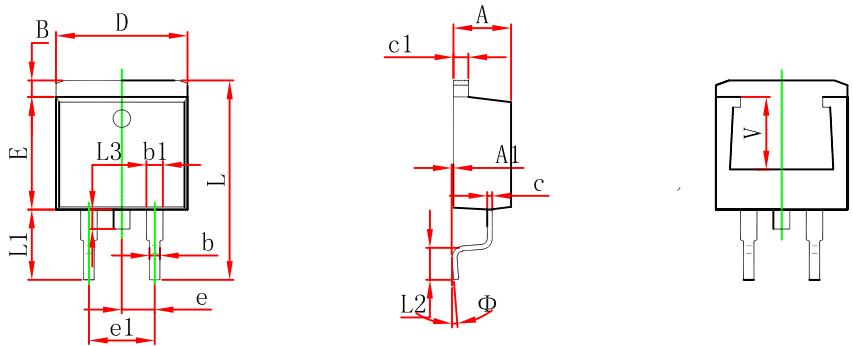


FIG.4: TYPICAL REVERSE CHARACTERISTICS

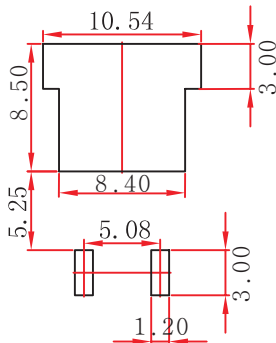


# TO-263-2L Package Outline Dimensions



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min.                      | Max.   | Min.                 | Max.  |
| A      | 4.470                     | 4.670  | 0.176                | 0.184 |
| A1     | 0.000                     | 0.150  | 0.000                | 0.006 |
| B      | 1.120                     | 1.420  | 0.044                | 0.056 |
| b      | 0.710                     | 0.910  | 0.028                | 0.036 |
| b1     | 1.170                     | 1.370  | 0.046                | 0.054 |
| c      | 0.310                     | 0.530  | 0.012                | 0.021 |
| c1     | 1.170                     | 1.370  | 0.046                | 0.054 |
| D      | 10.010                    | 10.310 | 0.394                | 0.406 |
| E      | 8.500                     | 8.900  | 0.335                | 0.350 |
| e      | 2.540 TYP.                |        | 0.100 TYP.           |       |
| e1     | 4.980                     | 5.180  | 0.196                | 0.204 |
| L      | 14.940                    | 15.500 | 0.588                | 0.610 |
| L1     | 4.950                     | 5.450  | 0.195                | 0.215 |
| L2     | 2.340                     | 2.740  | 0.092                | 0.108 |
| L3     | 1.300                     | 1.700  | 0.051                | 0.067 |
| Φ      | 0° 8°                     |        | 0° 8°                |       |
| V      | 5.600 REF.                |        | 0.220REF.            |       |

## TO-263-2L Suggested Pad Layout

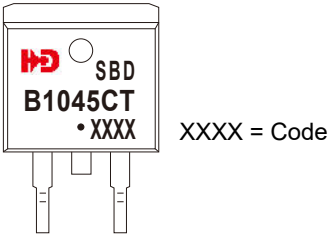


- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance:  $\pm 0.05\text{mm}$ .
  3. The pad layout is for reference purposes only.

## Ordering Information

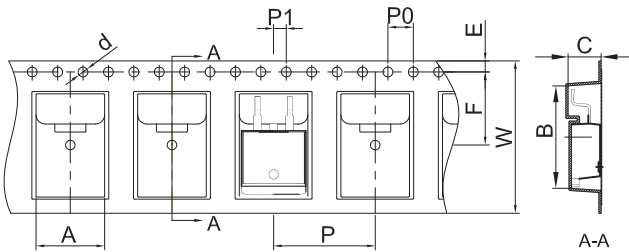
| Part Number | Package   | Shipping Quantity |
|-------------|-----------|-------------------|
| SBDB1045CT  | TO-263-2L | 800/tape&Reel     |

## Marking Diagram



# TO-263-2L Tape and Reel

## TO-263-2L Embossed Carrier Tape

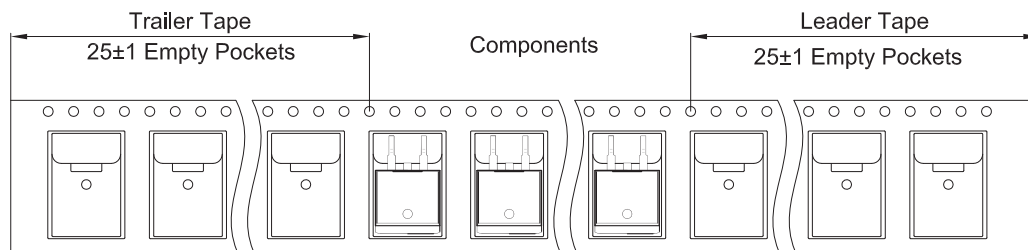


### Packaging Description:

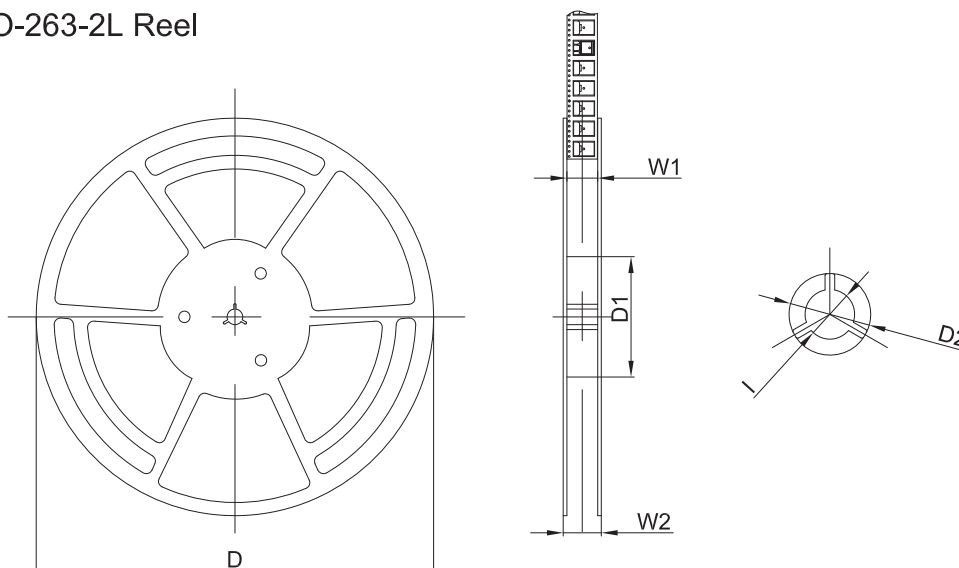
TO-263-2L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 800 units per 13" or 33.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

| Dimensions are in millimeter |       |       |      |       |      |       |      |       |      |       |
|------------------------------|-------|-------|------|-------|------|-------|------|-------|------|-------|
| Pkg type                     | A     | B     | C    | d     | E    | F     | P0   | P     | P1   | W     |
| TO-263-2L                    | 10.80 | 16.13 | 5.21 | Ø1.55 | 1.75 | 11.50 | 4.00 | 16.00 | 2.00 | 24.00 |

## TO-263-2L Tape Leader and Trailer



## TO-263-2L Reel



| Dimensions are in millimeter |         |        |        |      |      |        |
|------------------------------|---------|--------|--------|------|------|--------|
| Reel Option                  | D       | D1     | D2     | W1   | W2   | I      |
| 13"Dia                       | Ø330.00 | 100.00 | Ø21.00 | 24.4 | 30.4 | Ø13.00 |

| REEL    | Reel Size | Box     | Box Size(mm) | Carton    | Carton Size(mm) | G.W.(kg) |
|---------|-----------|---------|--------------|-----------|-----------------|----------|
| 800 pcs | 13 inch   | 800 pcs | 340×336×36   | 8,000 pcs | 400×353×365     |          |