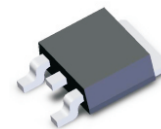


# CDBD640-HF

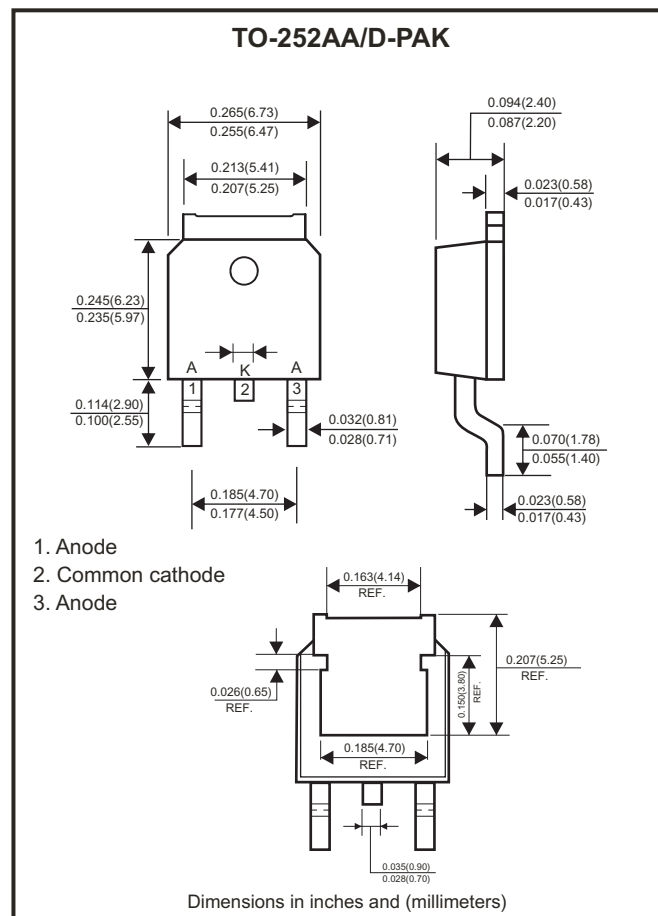
**Reverse Voltage: 40 V**
**Forward Current: 6 A**
**RoHS Device**
**Halogen Free**


## Features

- Excellent power dissipation offers better reverse leakage current and thermal resistance
- Low Profile surface mount application in order to optimize board space
- Metal silicon junction, major carrier conduction.
- 6A total (3A per diode leg)
- Guarding for over voltage protection
- Low power loss, high efficiency
- High surge capability
- High current capability, low forward voltage drop
- Ultra-high speed switching

## Mechanical data

- Case: Molded plastic, TO-252
- Mounting position: Any
- Terminals: Pure tin plated, lead-free, solderable per MIL-STD-750 method 2026.
- Epoxy: UL 94V-0 rate flame retardant
- Polarity: indicated by diode symbol
- Weight: 0.34 grams (approx.).



## Maximum Ratings and Electrical Characteristics (Per Diode Leg)

(Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz resistive or inductive load. For capacitive load, derate current by 20%)

| Parameter                                               | Conditions                                                           | Symbol          | MIN. | TYP. | MAX. | Unit |
|---------------------------------------------------------|----------------------------------------------------------------------|-----------------|------|------|------|------|
| Recurrent peak reverse voltage                          |                                                                      | $V_{RRM}$       |      |      | 40   | V    |
| RMS voltage                                             |                                                                      | $V_{RMS}$       |      |      | 28   | V    |
| DC blocking voltage                                     |                                                                      | $V_{DC}$        |      |      | 40   | V    |
| Instantaneous forward voltage                           | $I_F = 3A$                                                           | $V_F$           |      |      | 0.57 | V    |
| Average forward rectified current                       | Per Diode                                                            | $I_{F(AV)}$     |      |      | 3    | A    |
|                                                         | Per Device                                                           |                 |      |      | 6    |      |
| Non-repetitive peak forward surge current               | 8.3ms single half sine-wave superimposed on rate load (JEDEC method) | $I_{FSM}$       |      |      | 75   | A    |
| Maximum DC reverse current at rated DC blocking voltage | $V_R = 40V, T_J = 25^\circ C$                                        | $I_R$           |      |      | 0.5  | mA   |
|                                                         | $V_R = 40V, T_J = 125^\circ C$                                       | $I_R$           |      |      | 20   | mA   |
| Thermal Resistance                                      | Junction to case (Note 1)                                            | $R_{\theta JC}$ |      |      | 6    | °C/W |
| Operating junction temperature range                    |                                                                      | $T_J$           | -55  |      | +150 | °C   |
| Storage temperature range                               |                                                                      | $T_{STG}$       | -65  |      | +175 | °C   |

**Note:** 1. Device mounted on FR-4 substrate, 125mm<sup>2</sup> copper pad areas.

Company reserves the right to improve product design , functions and reliability without notice.

REV: A

## RATING AND CHARACTERISTIC CURVES (CDBD640-HF)

Fig.1 - Forward Current Derating Curve

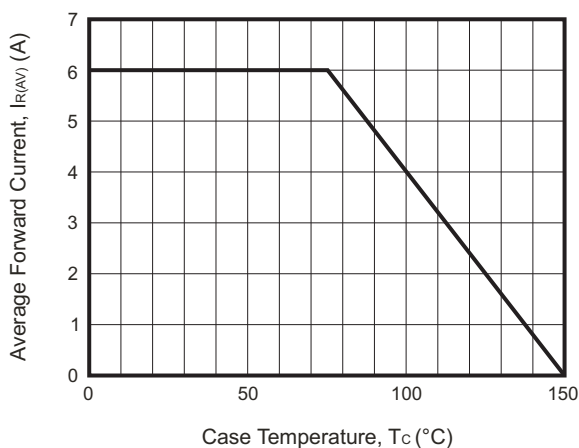


Fig.2 - Maximum Non-Repetitive Forward Surge Current

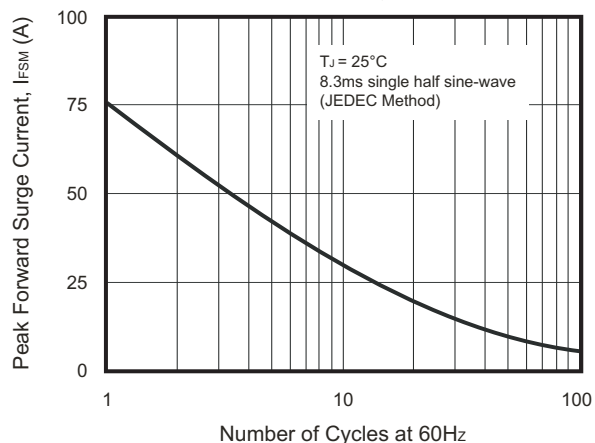


Fig.3 - Forward Current vs Forward Voltage

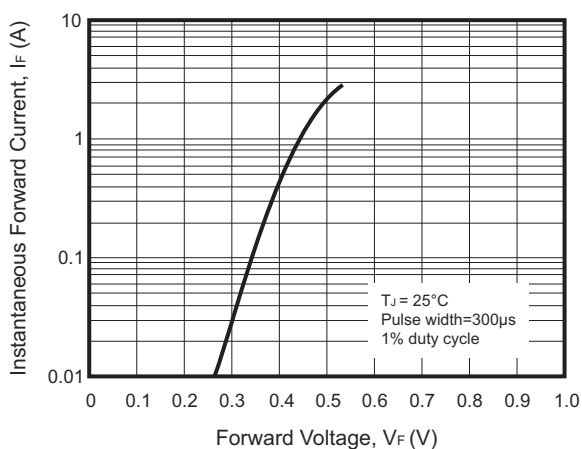
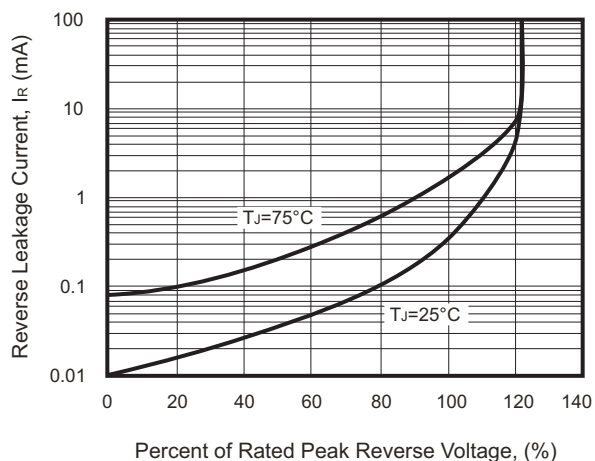
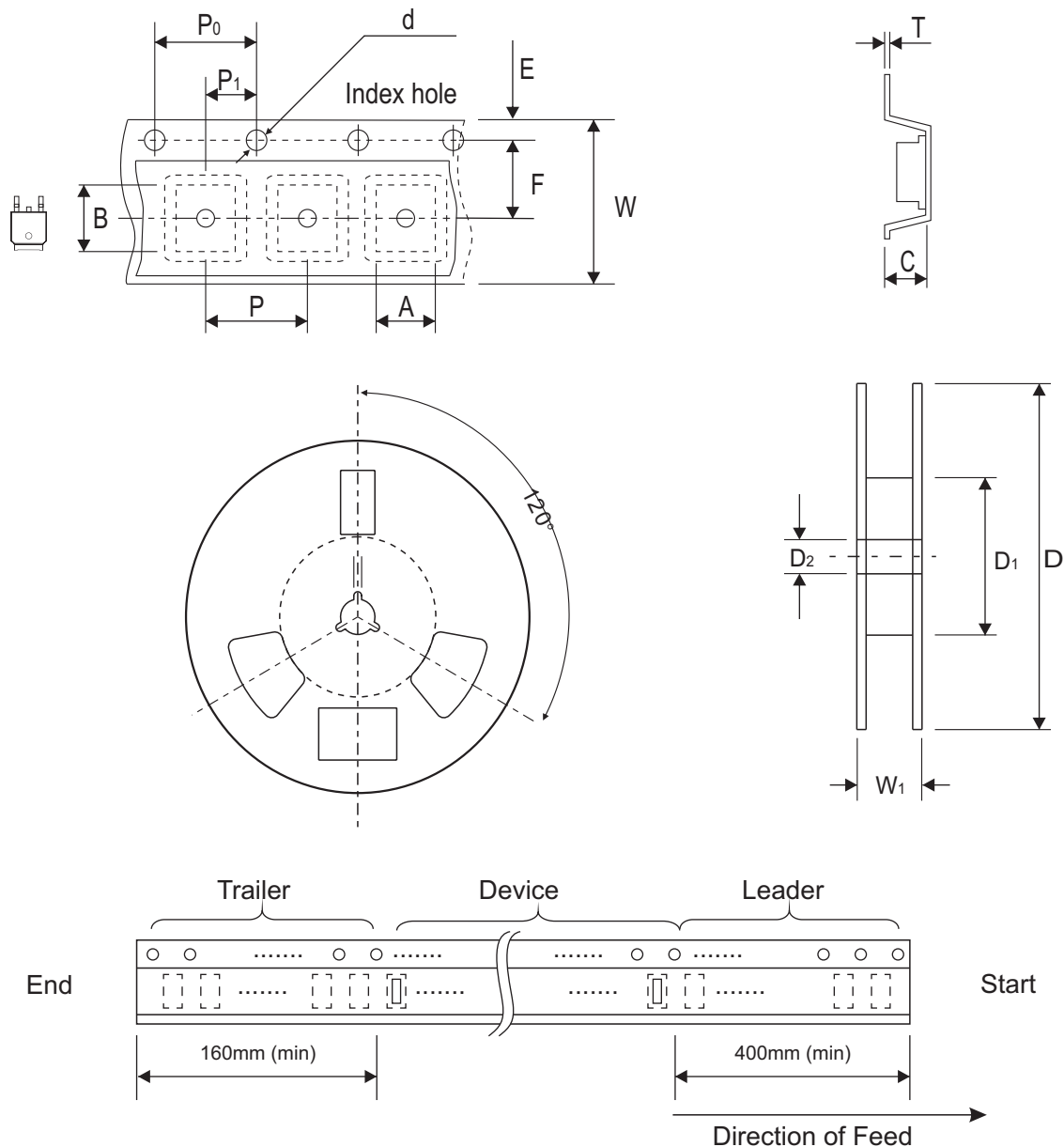


Fig.4 - Reverse Leakage Current vs Reverse Voltage



## Reel Taping Specification

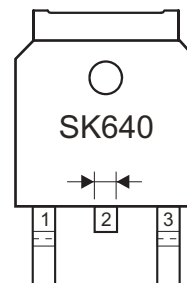


| TO-252AA/D-PAK | SYMBOL | A                 | B                 | C                 | d                 | D                  | D1                | D2                |
|----------------|--------|-------------------|-------------------|-------------------|-------------------|--------------------|-------------------|-------------------|
|                | (mm)   | $10.49 \pm 0.10$  | $6.96 \pm 0.10$   | $2.79 \pm 0.10$   | $1.55 \pm 0.10$   | $330.00 \pm 2.00$  | $100.00 \pm 1.50$ | $2.00 \pm 0.50$   |
|                | (inch) | $0.413 \pm 0.004$ | $0.274 \pm 0.004$ | $0.110 \pm 0.004$ | $0.061 \pm 0.004$ | $12.992 \pm 0.079$ | $3.937 \pm 0.059$ | $0.079 \pm 0.020$ |

| TO-252AA/D-PAK | SYMBOL | E                 | F                 | P                 | P <sub>0</sub>    | P <sub>1</sub>    | W                         | W <sub>1</sub>    |
|----------------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------------|-------------------|
|                | (mm)   | $1.75 \pm 0.10$   | $7.50 \pm 0.10$   | $8.00 \pm 0.10$   | $4.00 \pm 0.10$   | $2.00 \pm 0.10$   | $16.00^{+0.30}_{-0.10}$   | $22.40 \pm 0.60$  |
|                | (inch) | $0.069 \pm 0.004$ | $0.295 \pm 0.004$ | $0.315 \pm 0.004$ | $0.157 \pm 0.004$ | $0.079 \pm 0.004$ | $0.630^{+0.012}_{-0.004}$ | $0.882 \pm 0.024$ |

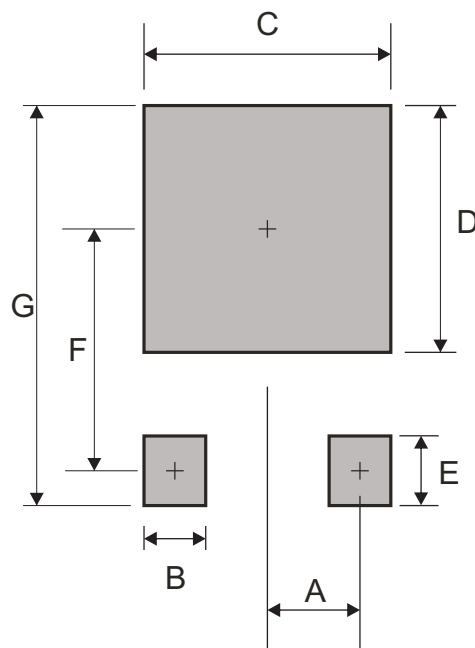
## Marking Code

| Part Number | Marking Code |
|-------------|--------------|
| CDBD640-HF  | SK640        |



## Suggested PAD Layout

| SIZE | TO-252AA / D-PAK |        |
|------|------------------|--------|
|      | (mm)             | (inch) |
| A    | 2.30             | 0.091  |
| B    | 1.50             | 0.059  |
| C    | 7.00             | 0.276  |
| D    | 7.00             | 0.276  |
| E    | 2.50             | 0.098  |
| F    | 6.90             | 0.272  |
| G    | 11.60            | 0.457  |



## Standard Packaging

| Case Type      | REEL PACK       |                     |
|----------------|-----------------|---------------------|
|                | REEL<br>( pcs ) | REEL SIZE<br>(inch) |
| TO-252AA/D-PAK | 2,500           | 13                  |