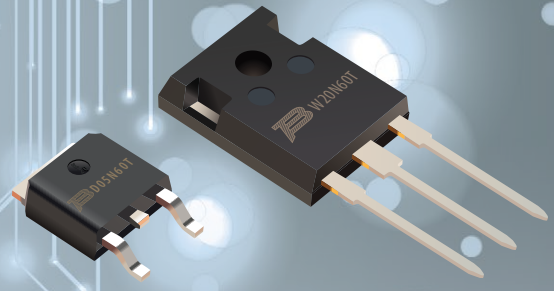


# NEW PRODUCT BRIEF

## Bourns® Model BID Series Insulated Gate Bipolar Transistors (IGBTs)

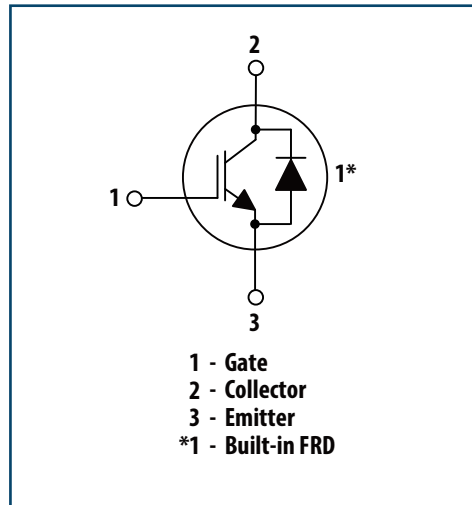


### INTRODUCTION

The **Bourns® Model BID Series** discrete insulated gate bipolar transistor (IGBT) products combine technology from a MOSFET gate and a bipolar transistor, resulting in an optimum solution for high voltage and high current applications. These devices use Trench-Gate Field-Stop (TGFS) technology providing excellent control of dynamic characteristics while resulting in a lower collector-emitter saturation voltage ( $V_{CE(sat)}$ ) and lower switching losses. In addition, the devices provide a lower thermal resistance ( $R_{th(j-c)}$ ) due to the thermally efficient TO-252, TO-247 and TO-247N packages. These cost-effective, industry-leading products are also RoHS compliant.

### FEATURES

- Discrete IGBT co-packed with Fast Recovery Diode (FRD)
- Advanced Trench-Gate Field-Stop (TGFS) technology
- Low saturation voltage drop ( $V_{CE(sat)}$ )
- Low switching loss
- TO-252, TO-247 and TO-247N packages
- Qualified according to JEDEC standard for power switching products
- RoHS compliant\*



### MARKET TRENDS

The discrete IGBT market eclipsed \$1.3 billion in sales in 2020 and is expected to exceed \$1.6 billion by 2026. (Reference: Yole Development 2021), driven by strong growth in home appliances, welding, industrial motor drives, and automotive applications.

Together, discrete IGBT devices and IGBT modules are projected to achieve a worldwide compound annual growth rate (CAGR) of 7.5 % from 2020 to 2026 (Reference: Yole Development 2021) despite the concurrent proliferation of SiC-MOSFETs and GaN solutions. In general, medium- and high-voltage applications use IGBT modules, while consumer and other low-voltage applications prefer discrete components.

### APPLICATIONS

Bourns® BID Series is designed to address the power management needs of several high-volume, high-growth applications including home appliances, industrial motor drives, and welding.

Through advanced trench-gate-field-stop technology that enables low conduction and switching losses, these Bourns® IGBTs address the growing need for cost-effective power efficiency.

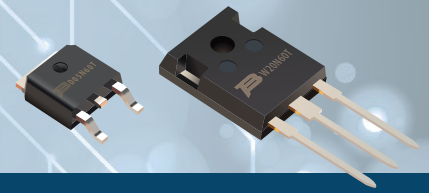
### HOW TO ORDER

**B I D W 50 N 65 T**

B = Bourns  
I = IGBT  
Type \_\_\_\_\_  
D = Discreet  
Package Code \_\_\_\_\_  
W = TO-247-3L  
Current Rating \_\_\_\_\_  
50 - 50 A  
Device Type \_\_\_\_\_  
N = N-Channel  
Nominal Voltage (divided by 10) \_\_\_\_\_  
65 = 650 V  
Optimization \_\_\_\_\_  
T = Medium Speed

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

# NEW PRODUCT BRIEF



## Bourns® Model BID Series Insulated Gate Bipolar Transistors (IGBTs)

### TO-252 SMD IGBT ( $T_C = 25^\circ\text{C}$ , Unless Otherwise Specified)

Model Number	Photo	Package	Type	$V_{CES}$ (V)	$I_C$ @ $T=100^\circ\text{C}$ (A)	Typ. $V_{CE(sat)}$ @ $I_C, V_{ge}=15\text{V}$ (V)	$I_F$ @ $T_C=100^\circ\text{C}$ (A)	Operating Junction Temperature
<a href="#">BIDD05N60T</a>		TO-252	Medium Speed	600	5	1.5	–	$-55^\circ\text{C}$ to $+150^\circ\text{C}$

### TO-247 DIP IGBT ( $T_C = 25^\circ\text{C}$ , Unless Otherwise Specified)

Model Number	Photo	Package	Type	$V_{CES}$ (V)	$I_C$ @ $T=100^\circ\text{C}$ (A)	Typ. $V_{CE(sat)}$ @ $I_C, V_{ge}=15\text{V}$ (V)	$I_F$ @ $T_C=100^\circ\text{C}$ (A)	Operating Junction Temperature
<a href="#">BIDW20N60T</a>		TO-247	Medium Speed	600	20	1.7	20	$-55^\circ\text{C}$ to $+150^\circ\text{C}$
<a href="#">BIDW30N60T</a>		TO-247	Medium Speed	600	30	1.65	30	$-55^\circ\text{C}$ to $+150^\circ\text{C}$
<a href="#">BIDW50N65T</a>		TO-247	Medium Speed	650	50	1.65	50	$-55^\circ\text{C}$ to $+150^\circ\text{C}$
<a href="#">BIDNW30N60H3</a>		TO-247N	High Speed	600	30	1.65	12	$-55^\circ\text{C}$ to $+150^\circ\text{C}$

### IGBT Product Portfolio

$V_{CES}, I_C$ (V) / (A)	TO-252	TO-247	TO-247N
600 V, 5 A	BIDD05N60T	–	–
600 V, 20 A	–	BIDW20N60T	–
600 V, 30 A	–	BIDW30N60T	BIDNW30N60H3
650 V, 50 A	–	BIDW50N65T	–

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