Silicon NPN Power Transistor

BD245/A/B/C

TO-3P

TO-3P
Plastic Leaded Package
RoHS compliant

DESCRIPTION

1. Collector Current -I_C= 10A
2. Collector-Emitter Breakdown Voltage:- $V_{(BR)CEO}$ = 45V(Min)- BD245; 60V(Min)- BD245A 80V(Min)- BD245B; 100V(Min)- BD245C
3. Complement to Type BD246/A/B/C

APPLICATIONS:

Designed for use in general purpose power amplifier and switching applications

ABSOLUTE MAXIMUM RATINGS (T_a = 25 °C)

DESCRIPTION	SYMBOL	VALUES	UNIT
Collector Emitter Voltage	V_{CEO}	100	V
Collector Base Voltage	V_{CBO}	100	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current Continuous	I_C	5	A
Collector Current Peak	I_{CM}	8	A
Base Current	I_B	120	mA
Power Dissipation upto T_c=25ºC	P_D	65	W
Derate above 25ºC		0.52	W/ºC
Power Dissipation upto T_a=25ºC	P_D	2	W
Derate above 25ºC		16	mW/ºC
Unclamped Inductive Load Energy	*E	50	mJ
Operating And Storage Junction Temperature	T_j, T_{stg}	- 65 to +150	ºC

* I_C=1A, L=100mH, P.R.F.=10Hz, V_{CC}=20V, R_{BE}=100Ω

THERMAL RESISTANCE

DESCRIPTION	SYMBOL	VALUES	UNIT
Junction to Case	$R_{\theta(j\text{-}c)}$	1.92	°C/W
Junction to Ambient in free air	$R_{\theta(j\text{-}a)}$	62.5	

ELECTRICAL CHARACTERISTICS at T_a = 25 °C

DESCRIPTION	SYMBOL	TEST CONDITIONS	VALUES		UNIT
			MIN	MAX	
Collector Emitter (sus) Voltage	*$V_{CEO(sus)}$	I_C=100mA, I_B=0	100	--	V
Collector Cut Off Current	I_{CEO}	V_{CE}=50V, I_B=0	--	0.5	mA
		V_{CE}=40V, I_B=0	--		
		V_{CE}=30V, I_B=0	--		
Collector Cut Off Current	I_{CBO}	V_{CB}=100V, I_E=0	--	0.2	
		V_{CB}=80V, I_E=0	--		
		V_{CB}=60V, I_E=0	--		
Emitter Cut Off Current	I_{EBO}	V_{EB}=5V, I_C=0	--	2	
DC Current Gain	*h_{FE}	I_C=3A, V_{CE}=3V	6000	--	
Collector Emitter Saturation Voltage	*$V_{CE\ (sat)}$	I_C=3A, I_B=12mA	--	2	V
		I_C=5A, I_B=20mA	--	4	
Base Emitter On Voltage	*$V_{BE\ (on)}$	I_C=3A,V_{CE}=3V	--	2.5	

Note:

*Pulse Test : Pulse width ≤300/-s, Duty Cycle ≤2%

DYNAMIC CHARACTERISTIC

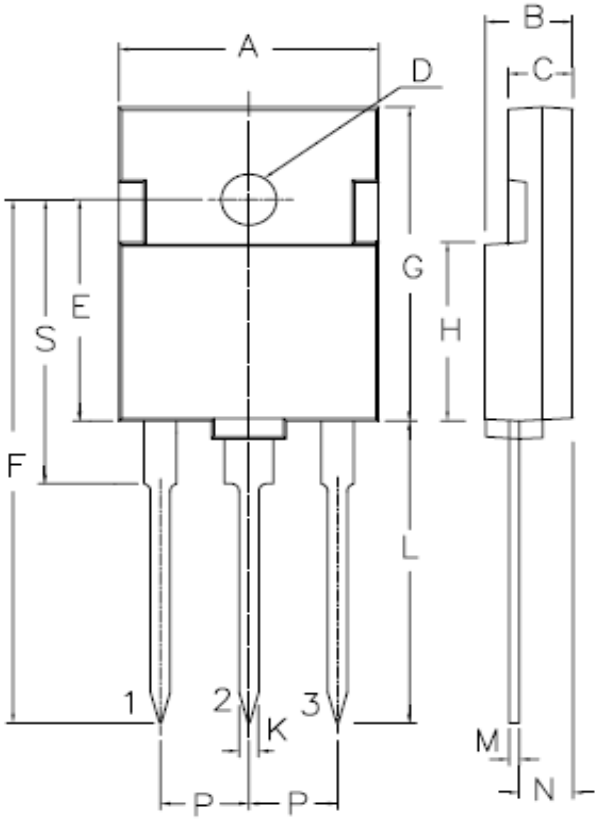
DESCRIPTION	SYMBOL	TEST CONDITIONS	VALUES		UNIT
			MIN	MAX	
Small Signal Current Gain	h_{fe}	I_C=3A,V_{CE}=4V, f=1MHz	4	--	
Output Capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=0.1MHz	--	200	pF

SWITCHING CHARACTERISTICS

DESCRIPTION	SYMBOL	TEST CONDITIONS	VALUES	UNIT
			Typ.	
Turn on time	t_{on}	I_C=3A, R_L=10	0.4	S
Turn off time	t_{off}	I_{B1}=I_{B2}=12mA I_{B1}=I_{B2}=12mA	1.2	S

Package Details

TO-3P Package Outline and Dimension



DIM	MIN.	MAX.
A	15.8	16.4
B	5.2	5.7
C	3.8	4.2
D	ø3.3	ø3.6
E	14.50	15.10
F	33.25	36.75
G	20.75	21.25
H	11.50	12.25
K	1.0	1.30
L	18.75	21.65
M	0.40	0.60
N	3.15	3.45
P	5.21	5.72
S	18.75	19.25

PIN CONFIGURATION
1. BASE
2. COLLECTOR
3. EMITTER

BD245
RevMTK18122019E

Recommended Product Storage Environment for Diode and Transistors

This storage environment assumes that the Diodes and transistors are packed properly inside the original packing supplied by CDIL.

- Temperature **5 °C to 30 °C**
- Humidity between **40 to 70 %RH**
- Air should be clean.
- Avoid harmful gas or dust.
- Avoid outdoor exposure or storage in areas subject to rain or water spraying .
- Avoid storage in areas subject to corrosive gas or dust. Product shall not be stored in areas exposed to direct sunlight.
- Avoid rapid change of temperature.
- Avoid condensation.
- Mechanical stress such as vibration and impact shall be avoided.
- The product shall not be placed directly on the floor.
- The product shall be stored on a plane area. They should not be turned upside down. They should not be placed against the wall.

Shelf Life of CDIL Products

The shelf life of products is the period from product manufacture to shipment to customers. The product can be unconditionally shipped within this period. The period is defined as 2 years.

If products are stored longer than the shelf life of 2 years, the products shall be subjected to quality check as per CDIL quality procedure.

The products are further warranted for another one year after the date of shipment subject to the above conditions in CDIL original packing.

Floor Life of CDIL Products and MSL Level

When the products are opened from the original packing, the floor life will start. For this the following JEDEC table may be referred:

JEDEC MSL Level		
Level	Time	Condition
1	Unlimited	≤ 30 °C / 85% RH
2	1 Year	≤ 30 °C / 60% RH
2a	4 Weeks	≤ 30 °C / 60% RH
3	168 Hours	≤ 30 °C / 60% RH
4	72 Hours	≤ 30 °C / 60% RH
5	48 Hours	≤ 30 °C / 60% RH
5a	24 Hours	≤ 30 °C / 60% RH
6	Time on Label(TOL)	≤ 30 °C / 60% RH

Figure 1 Floor Life according to JEDEC MSL Level

Customer Notes

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.

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Continental Device India Pvt.Limited
C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone + 91-11-2579 6150, 4141 1112 Fax + 91-11-2579 5290, 4141 1119
email@cdil.com www.cdil.com
CIN No. - U32109DL1964PTC004291