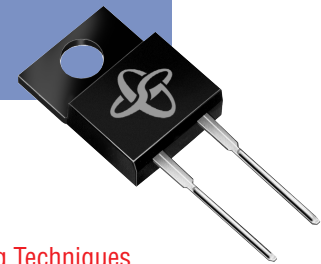


Isolated TO-220 Schottky Rectifiers



[Part Number Definition](#)

[ITO-220 Introduction](#)

[Product Features](#)

[Product Specifications Summary](#)

[Isolation Voltage](#)

[Test Conditions for Isolation Voltage Tests](#)

[Recommended Mounting Techniques](#)

[Applications](#)

[Schottky Rectifiers Selector Chart](#)

[Cross Reference](#)

[Case Outlines](#)

[Spice Model Parameters](#)

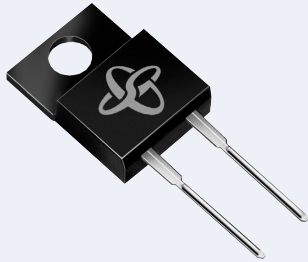
To view the datasheets please click here →

Datasheets

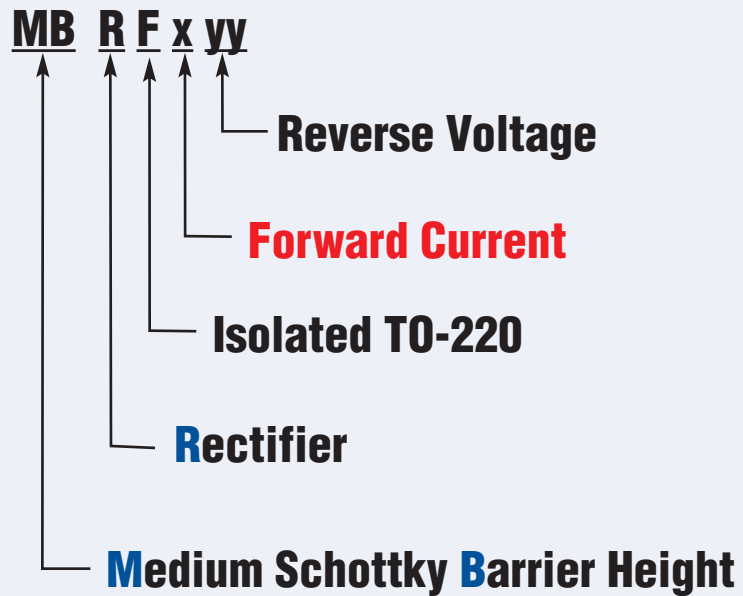
(Part numbers are listed on the Part Number Definition and Selector Chart pages).

PRODUCT PART NUMBER - MBRF SERIES

- MBRF7xx
- MBRF10xx
- MBRF16xx

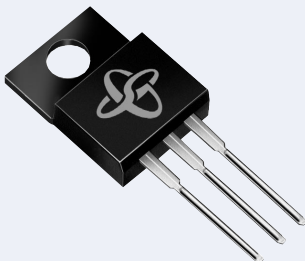


ITO-220AC

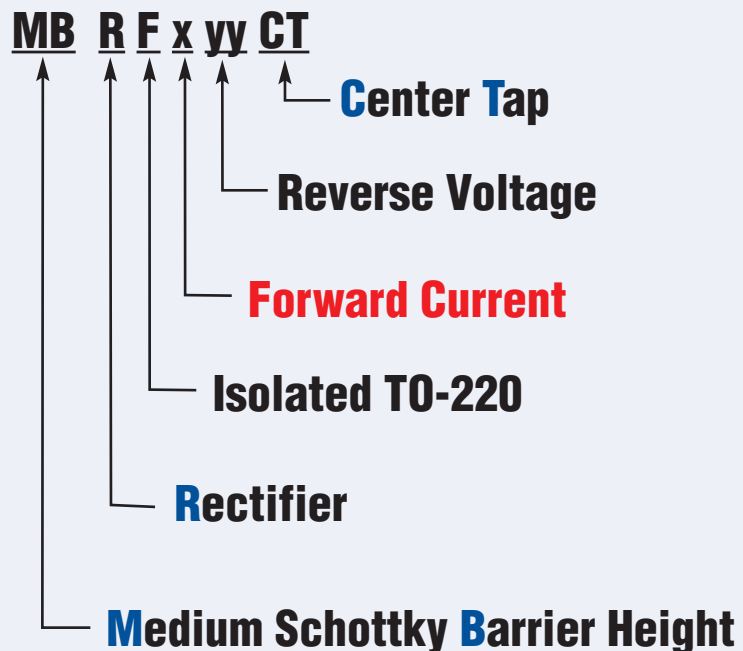


PRODUCT PART NUMBER - DUAL MBRF SERIES

- MBRF15xxCT
- MBRF20xxCT
- MBRF25xxCT

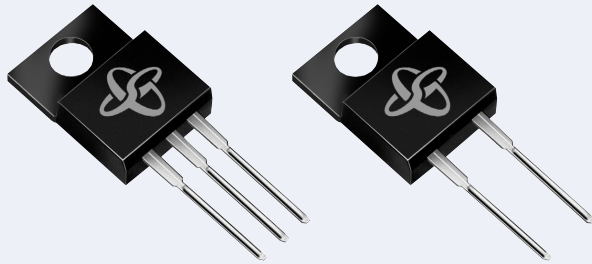


ITO-220AB



PRODUCT PART NUMBER - SBLF SERIES

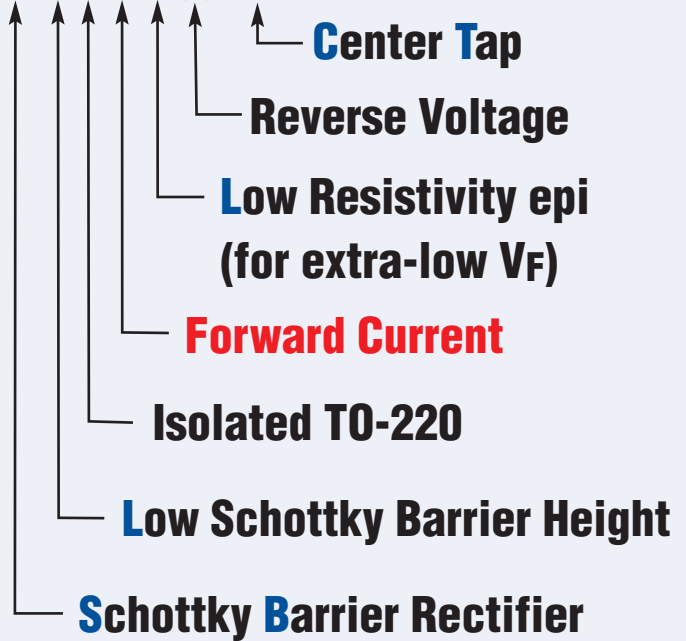
- SBLF10xx
- SBLF10xxCT
- SBLF16xxCT
- SBLF25LxxCT



ITO-220AB

ITO-220AC

SBLFxxLyyCT



ITO-220 INTRODUCTION

Isolated TO-220 products can be used for all the same applications as standard TO-220 products where isolation is needed between the device and a heatsink. ITO-220 products simplify assembly since they do not require insertion of insulating pads and thermal grease between the device and heatsink. The tradeoff is a slightly higher thermal resistance. Because larger heatsinks may be required, ITO-220 products are popular in applications where space is not a major issue and simpler assembly is desired. These applications include televisions and monitors.

PRODUCT FEATURES

- **Electrically isolated package — No additional isolation hardware needed**
- **Package has Underwriters Laboratory Flammability Classification 94V-0**
- **High current capability**
- **Low forward voltage drop**
- **High surge capability**
- **Metal silicon junction**
- **Guardring for overvoltage protection**

PRODUCT SPECIFICATION SUMMARY

I _{F(AV)}	Part Number	V _(BR) Range (V)	Max V _F @ I _F		Type
			(V)	(A)	
7.5	MBRF735-MBRF745	35-45	0.84	15	Single
	MBRF750-MBRF760	50-60	0.75	7.5	Single
10	MBRF1035-MBRF1045	35-45	0.84	20	Single
	MBRF1050-MBRF1060	50-60	0.80	10	Single
	SBLF1030-SBLF1040	30-40	0.55	10	Single
	SBLF1030CT-SBLF1040CT	30-40	0.55	5	Dual
15	MBRF1535CT-MBRF1545CT	35-45	0.84	15	Dual
	MBRF1550CT-MBRF1560CT	50-60	0.75	7.5	Dual
16	MBRF1635-MBRF1645	35-45	0.63	16	Single
	MBRF1650-MBRF1660	50-60	0.75	16	Single
	SBLF1630CT-SBLF1640CT	30-40	0.55	8	Dual
20	MBRF2035CT-MBRF2045CT	35-45	0.84	20	Dual
	MBRF2050CT-MBRF2060CT	50-60	0.95	20	Dual
	SBLF2030CT-SBLF2040CT	30-40	0.55	10	Dual
25	MBRF2535CT-MBRF2545CT	35-45	0.82	30	Dual
	MBRF2550CT-MBRF2560CT	50-60	0.75	15	Dual
	SBLF25L20CT-SBLF25L30CT	20-30	0.49	12.5	Dual

Notes:

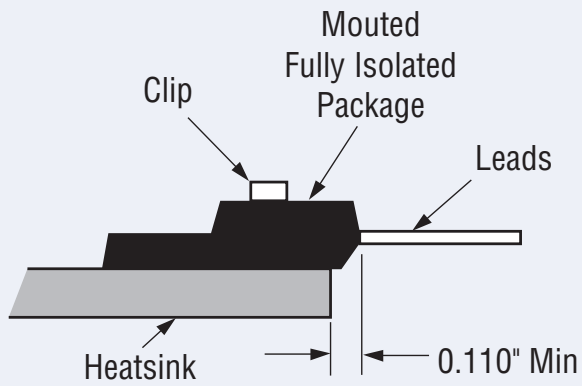
1. All electrical specifications are at 25°C
2. Electrical specifications are per diode for dual devices

ISOLATION VOLTAGE

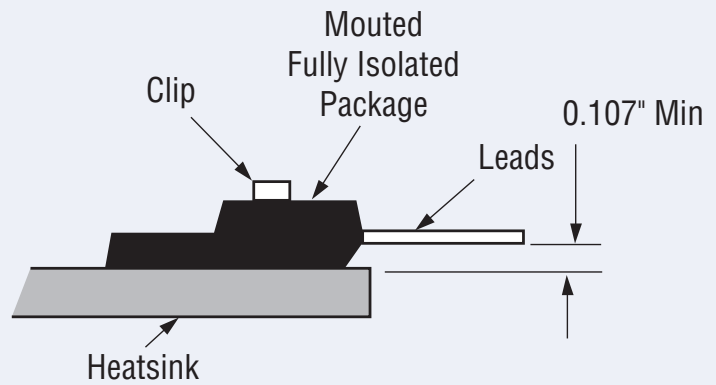
RMS Isolation voltage from terminal to heatsink

- 1. Clip mounting where lead does not overlap heatsink** **4500 Volts**
- 2. Clip Mounting where leads do overlap heatsink** **3500 Volts**
- 3. Screw mounting (where washer diameter is $\leq 4.9\text{mm}$)** **1500 Volts**

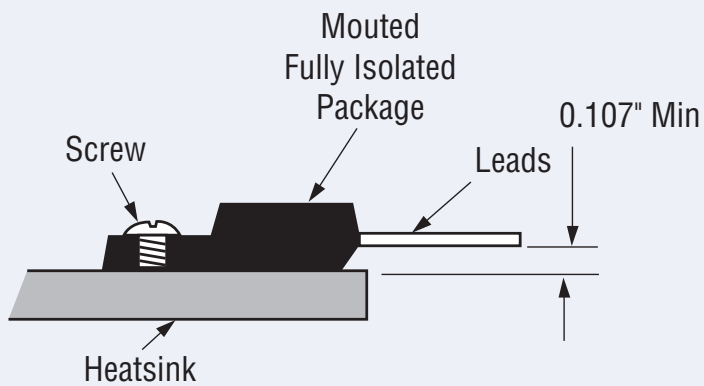
TEST CONDITIONS FOR ISOLATION VOLTAGE TESTS



**Clip Mounting Position
for Isolation Test Number 1**



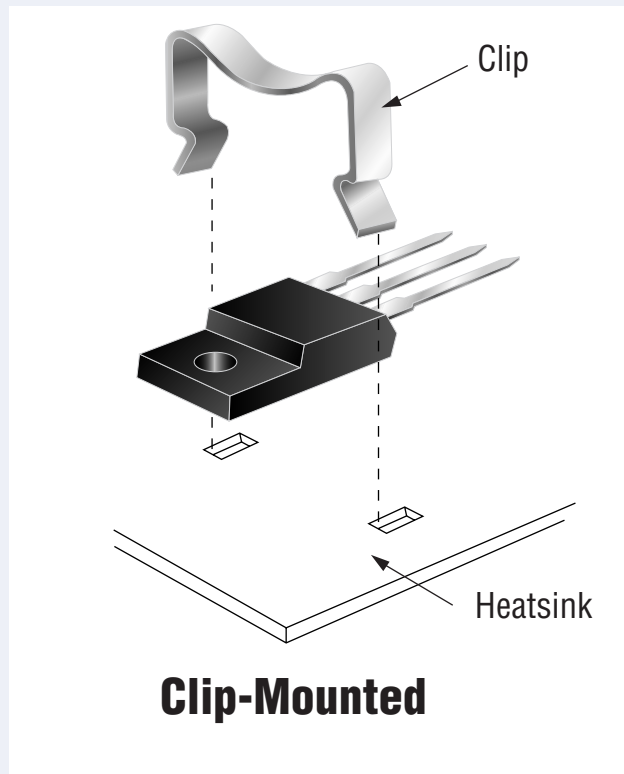
**Clip Mounting Position
for Isolation Test Number 2**



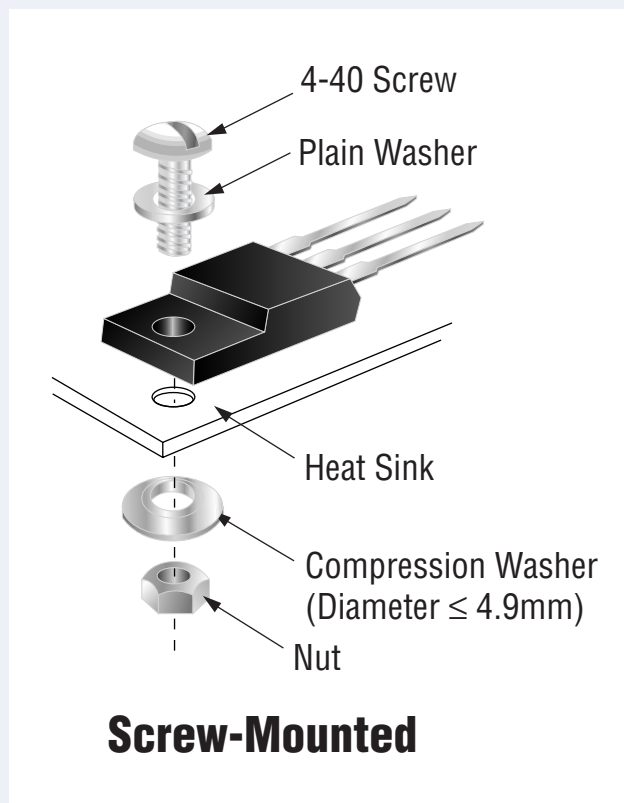
**Screw Mounting Position
for Isolation Test Number 3**

RECOMMENDED MOUNTING TECHNIQUES

Preferred



Acceptable



APPLICATIONS

- **Low voltage, high frequency inverters**
- **Polarity protection**

SCHOTTKY RECTIFIERS

I _{F(AV)} (A)	Device ⁽¹⁾	Package		V _(BR) Range (V)	Max V _F [ⓐ] (V)	I _F (A)
		Family ⁽³⁾	Type			
0.6	SB0xx	Plastic Axial	MPG06	20 - 40	0.55	0.6
1.0	SB1xx	Plastic Axial	DO-204AL (DO-41)	20 - 60	0.50 - 0.70	1.0
	1N5817 - 1N5819	Plastic Axial	DO-204AL (DO-41)	20 - 40	0.45 - 0.60	1.0
	1N5817G - 1N5819G	Glass Axial	DO-204AL (DO-41)	20 - 40	0.45 - 0.60	1.0
	1N5817M - 1N5819M	Glass SMD	Glass MELF	20 - 40	0.45 - 0.60	1.0
	SGL41-xx	Plastic SMD	DO-213AB (MELF)	20 - 60	0.50 - 0.70	1.0
	BYM13-xx	Plastic SMD	DO-213AB (MELF)	20 - 60	0.50 - 0.70	1.0
	SS1x	Plastic SMD	DO-214AC (SMA)	20 - 60	0.50 - 0.75	1.0
1.5	SL1x	Plastic SMD	DO-214AC (SMA)	20 - 30	0.36 / 0.445	0.1 / 1.0
	SS29-SS210+	Plastic SMD	DO-214AA(SMB)	90-100	0.75	1.0
2.0	SL2x	Plastic SMD	DO-214AA (SMB)	20 - 30	0.395 / 0.44	1.0 / 2.0
	SS2x	Plastic SMD	DO-214AA (SMB)	20 - 60	0.50 - 0.75	2.0
	SB290-SB2100+	Plastic Axial	DO-204AC	90-100	0.85	2.0
3.0	SB3x	Plastic Axial	DO-201AD	20 - 60	0.50 - 0.74	3.0
	1N5820-1N5822	Plastic Axial	DO-201AD	20 - 40	0.475 - 0.525	3.0
	SS3x	Plastic SMD	DO-214AB (SMC)	20 - 60	0.5 - 0.75	3.0
4.0	SL4x	Plastic SMD	DO-214AB (SMC)	20 - 40	0.42 / 0.47 ⁽⁵⁾	4.0 / 8.0
5.0	SB5x	Plastic Axial	DO-201AD	20 - 60	0.55 - 0.67	5.0
	SB590-SB5100+	Plastic Axial	DO-201AD	90-100	0.95	5.0
7.5	MBR7xx	Plastic Power-pack	TO-220AC	35 - 60	0.84 / 0.75 ⁽⁴⁾	15 / 7.5
	MBRF7xx	Isolated Power-pack	ITO-220AC	35 - 60	0.84 / 0.75⁽⁴⁾	15 / 7.5
	MBRB7xx	Power-pack SMD	TO-263AB (D ² PAK)	35 - 60	0.84 / 0.75 ⁽⁴⁾	15 / 7.5
10	SBL10xx	Plastic Power-pack	TO-220AC	30 - 40	0.55	10.0
	SBLF10xx	Isolated Power-pack	ITO-220AC	30 - 40	0.55	10.0
	SBLB10xx	Power-pack SMD	TO-263AB (D ² PAK)	30 - 40	0.55	10.0
	MBR10xx	Plastic Power-pack	TO-220AC	35 - 60	0.84 / 0.80 ⁽⁴⁾	20 / 10
	MBR1090-MBR10100+	Plastic Power-pack	TO-220AC	90-100	0.85	10
	MBRF10xx	Isolated Power-pack	ITO-220AC	35 - 60	0.84 / 0.80⁽⁴⁾	20 / 10
	MBRF1090-MBRF10100+	Isolated Power-pack	ITO-220AC	90-100	0.85	10
	MBRB10xx	Power-pack SMD	TO-263AB (D ² PAK)	35 - 60	0.84 / 0.80 ⁽⁴⁾	20 / 10
	MBRB10100-MBRB10100+	Power-pack SMD	TO-263AB (D ² PAK)	90-100	0.85	10
	SBL10xxCT	Plastic Power-pack ⁽²⁾	TO-220AB	30 - 40	0.55	5.0
SBLF10xxCT	Isolated Power-pack⁽²⁾	ITO-220AB	30 - 40	0.55	5.0	
SBLB10xxCT	Power-pack SMD ⁽²⁾	TO-263AB (D ² PAK)	30 - 40	0.55	5.0	
15	MBR15xxCT	Plastic Power-pack ⁽²⁾	TO-220AB	35 - 60	0.84 / 0.75 ⁽⁴⁾	15 / 7.5
	MBRF15xxCT	Isolated Power-pack⁽²⁾	ITO-220AB	35 - 60	0.84 / 0.75⁽⁴⁾	15 / 7.5
	MBRB15xxCT	Power-pack SMD ⁽²⁾	TO-263AB (D ² PAK)	35 - 60	0.84 / 0.75 ⁽⁴⁾	15 / 7.5

7/30/99

Notes:

(1) **Blue Text = New products**

(2) Dual center-tapped device (V_F limit@ I_F is per leg)

(3) All Schottky die are planar with oxide passivation

(4) 35V-45V product / 50V-60V product

(5) 40V SL44 has 0.44V/0.50V V_F at 4A/8A I_F

“+” indicates advanced information

SCHOTTKY RECTIFIERS – Con't.

I _{F(AV)} (A)	Device ⁽¹⁾	Package		V _(BR) Range (V)	Max V _F [Ⓞ] (V)	I _F (A)
		Family ⁽³⁾	Type			
16	MBR16xx	Plastic Power-pack	TO-220AC	35 - 60	0.63 / 0.75 ⁽⁴⁾	16
	MBRF16xx	Isolated Power-pack	ITO-220AC	35 - 60	0.63 / 0.75 ⁽⁴⁾	16
	MBRB16xx	Power-pack SMD	TO-263AB (D ² PAK)	35 - 60	0.63 / 0.75 ⁽⁴⁾	16
	SBL16xxCT	Plastic Power-pack ⁽²⁾	TO-220AB	30 - 40	0.55	8.0
	SBLF16xxCT	Isolated Power-pack ⁽²⁾	ITO-220AB	30 - 40	0.55	8.0
	SBLB16xxCT	Power-pack SMD ⁽²⁾	TO-263AB (D ² PAK)	30 - 40	0.55	8.0
20	MBR20xxCT	Plastic Power-pack ⁽²⁾	TO-220AB	35 - 60	0.84 / 0.80 ⁽⁴⁾	20 / 10
	MBR2090CT-MBR20100CT+	Plastic Power-pack ⁽²⁾	TO-220AB	90-100	0.85	10
	MBRF20xxCT	Isolated Power-pack ⁽²⁾	ITO-220AB	35 - 60	0.84 / 0.80 ⁽⁴⁾	20 / 10
	MBRF2090CT-MBRF20100CT+	Isolated Power-pack	ITO-220AB	90-100	0.85	10
	MBRB20xxCT	Power-pack SMD ⁽²⁾	TO-263AB (D ² PAK)	35 - 60	0.84 / 0.80 ⁽⁴⁾	20 / 10
	MBRB2090CT-MBRB20100CT+	Power-pack SMD ⁽²⁾	TO-263AB (D ² PAK)	90-100	0.85	10
	SBL20xxCT	Plastic Power-pack ⁽²⁾	TO-220AB	30 - 40	0.55	10
	SBLF20xxCT	Isolated Power-pack ⁽²⁾	ITO-220AB	30 - 40	0.55	10
	SBLB20xxCT	Power-pack SMD ⁽²⁾	TO-263AB (D ² PAK)	30 - 40	0.55	10
	SBL20xxPT	Plastic Power-pack ⁽²⁾	TO-247AD	30 - 40	0.55	10
25	MBR25xxCT	Plastic Power-pack ⁽²⁾	TO-220AB	35 - 60	0.82 / 0.75 ⁽⁴⁾	30 / 15
	MBRF25xxCT	Isolated Power-pack ⁽²⁾	ITO-220AB	35 - 60	0.82 / 0.75 ⁽⁴⁾	30 / 15
	MBRB25xxCT	Power-pack SMD ⁽²⁾	TO-263AB (D ² PAK)	35 - 60	0.82 / 0.75 ⁽⁴⁾	30 / 15
	SBL25LxxCT	Plastic Power-pack ⁽²⁾	TO-220AB	20 - 30	0.49	12.5
	SBLF25LxxCT	Isolated Power-pack ⁽²⁾	ITO-220AB	20 - 30	0.49	12.5
	SBLB25LxxCT	Power-pack SMD ⁽²⁾	TO-263AB (D ² PAK)	20 - 30	0.49	12.5
30	SBL30xxPT	Plastic Power-pack ⁽²⁾	TO-247AD	30 - 40	0.55	15
	MBR30xxPT	Plastic Power-pack ⁽²⁾	TO-247AD	35 - 60	0.76 / 0.75 ⁽⁴⁾	30 / 20
	SD241P	Plastic Power-pack ⁽²⁾	TO-247AD	45	0.47 / 0.60	10 / 20 (125°C)
40	MBR40xxPT	Plastic Power-pack ⁽²⁾	TO-247AD	35 - 60	0.70 / 0.72 ⁽⁴⁾	20
	SBL40xxPT	Plastic Power-pack ⁽²⁾	TO-247AD	30 - 40	0.58	20

7/30/99

Notes:

(1) **Blue Text = New Products**

(2) Dual center-tapped device (V_F limit@ I_F is per leg)

(3) All Schottky die are planar with oxide passivation

(4) 35V–45V product / 50V–60V product

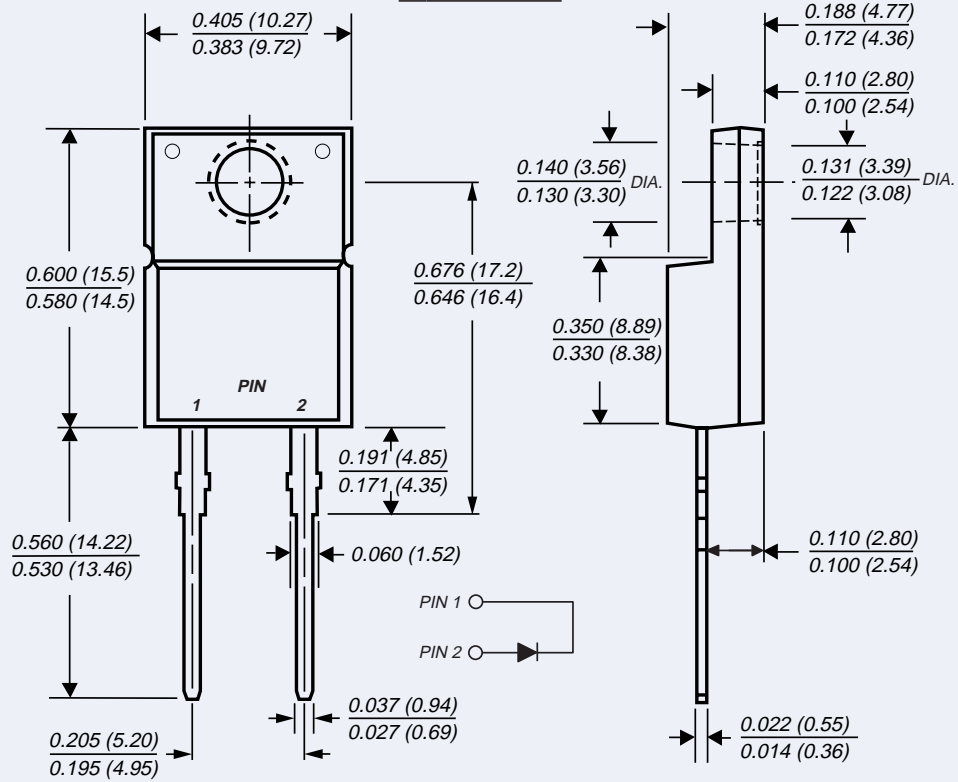
"+" indicates advanced information

CROSS REFERENCE

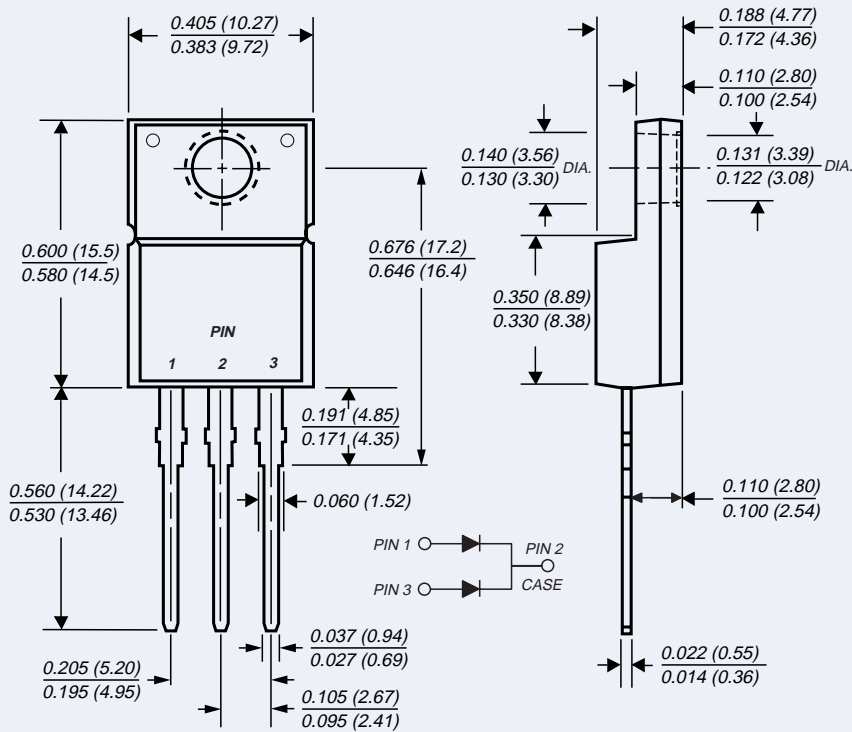
Part Number	GS's Replacement P/N
MBRF745	MBRF745
MBRF1045	MBRF1045
MBRF1545CT	MBRF1545CT
MBRF1645	MBRF1645
MBRF2045CT	MBRF2045CT
MBRF2060CT	MBRF2060CT
MBRF2545CT	MBRF2545CT
PBYR745X	MBRF745
PBYR1045X	MBRF1045
PBYR1645X	MBRF1645
PBYR2045CTX	MBRF2045CT
STPS2045CF	MBRF2045CT

CASE OUTLINES

ITO-220AC



ITO-220AB



Dimensions in inches and (millimeters)