

# XBSC41A066

ETR16043-001

## SiC Schottky Barrier Diodes (650V, 6A)

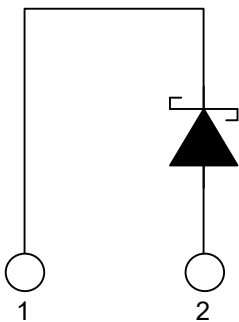
### FEATURES

- Fast switching operation
- Low recovery loss
- Environmentally Friendly : EU RoHS Compliant, Pb Free

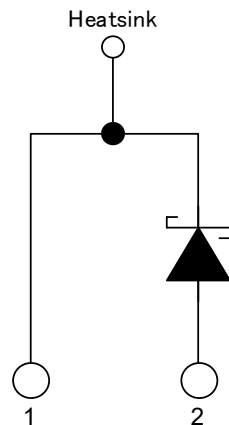
$V_{RM}$	650V
$I_F$	6A
$V_F$	1.35V

### EQUIVALENT CIRCUIT

TO-220FM-2



TO-220AC

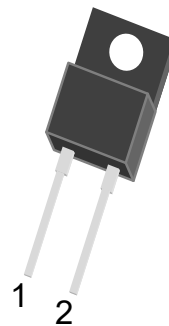


### APPLICATIONS

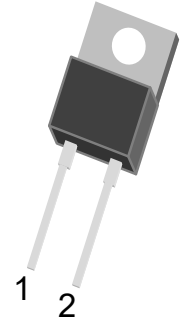
- Power Factor Correction
- Solar Inverters
- Uninterruptible Power Supplies

### PIN CONFIGURATION

TO-220FM-2



TO-220AC



1 : Cathode  
2 : Anode

### PRODUCT NAME

PRODUCT NAME	PACKAGE	ORDER UNIT
XBSC41A066CS-G	TO-220AC	1,000 pcs/ 20 Tubes
XBSC41A066FS-G	TO-220FM-2	1,000 pcs/ 20 Tubes

### ABSOLUTE MAXIMUM RATINGS

$T_c=25^{\circ}\text{C}$  unless otherwise specified

PARAMETER		SYMBOL	RATINGS	UNITS
Repetitive Peak Reverse Voltage		$V_{RM}$	650	V
Reverse Voltage		$V_R$	650	V
Forward Current ( $T_c=100^{\circ}\text{C}$ )		$I_F$	6	A
Non-Continuous	PW <sup>(*)</sup> =10ms, Sinusoidal, $T_c=25^{\circ}\text{C}$	$I_{FSM}$	56	A
Forward Surge Current	PW <sup>(*)</sup> =10ms, Sinusoidal, $T_c=150^{\circ}\text{C}$		46	A
$i^2t$ value	PW <sup>(*)</sup> =10ms, $T_c=25^{\circ}\text{C}$	$\int i^2 dt$	15	$\text{A}^2\text{s}$
	PW <sup>(*)</sup> =10ms, $T_c=150^{\circ}\text{C}$		10	$\text{A}^2\text{s}$
Total Power Dissipation	TO-220AC	$P_d$	39	W
	TO-220FM-2	$P_d$	28	W
Junction Temperature		$T_J$	175	$^{\circ}\text{C}$
Storage Temperature		$T_{stg}$	-55 ~ 175	$^{\circ}\text{C}$

(\*) Pulse Width

## ■ THERMAL CHARACTERISTICS

PARAMETER		SYMBOL	TYP.	MAX.	UNIT
Thermal Resistance, junction-case	TO-220AC	$R_{thJC}$	2.8	3.8	°C/W
	TO-220FM-2		4.6	5.3	°C/W

## ■ ELECTRICAL CHARACTERISTICS

T<sub>j</sub>=25°C

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC Blocking Voltage	V <sub>DC</sub>	I <sub>R</sub> =30μA	650	-	-	V
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =6A, T <sub>j</sub> =25°C	-	1.35	1.65	V
		I <sub>F</sub> =6A, T <sub>j</sub> =150°C	-	1.7	-	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =650V, T <sub>j</sub> =25°C	-	0.3	48	μA
		V <sub>R</sub> =650V, T <sub>j</sub> =150°C	-	6	-	μA
Total Capacitance	C	V <sub>R</sub> =1V, f=1MHz	-	240	-	pF
		V <sub>R</sub> =400V, f=1MHz	-	30	-	pF
Total Capacitive Charge	Q <sub>C</sub>	V <sub>R</sub> =400V	-	12	-	nC

## ■ NOTES ON USE

1. Please use this IC within the absolute maximum ratings.

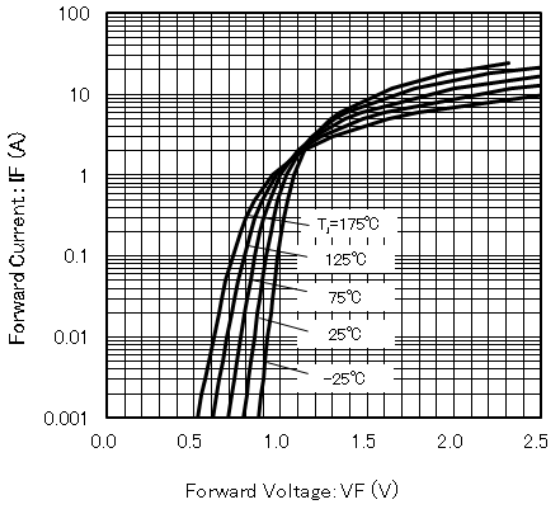
Even within the ratings, in case of high load use continuously such as high temperature, high voltage, high current and thermal stress may cause reliability degradation of the IC.

2. Torex places an importance on improving our products and their reliability.

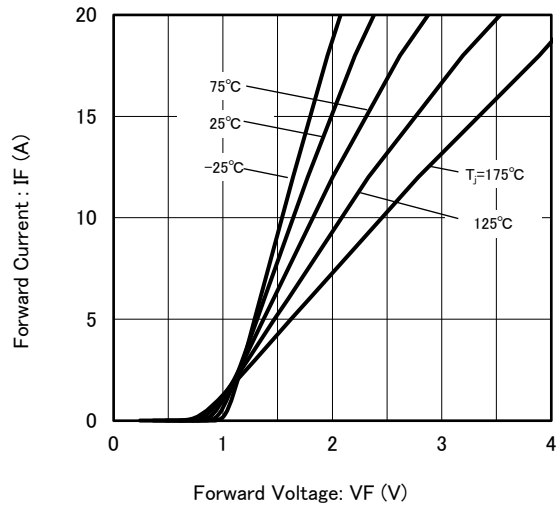
We request that users incorporate fail-safe designs and post-aging protection treatment when using Torex products in their systems.

# TYPICAL PERFORMANCE CHARACTERISTICS

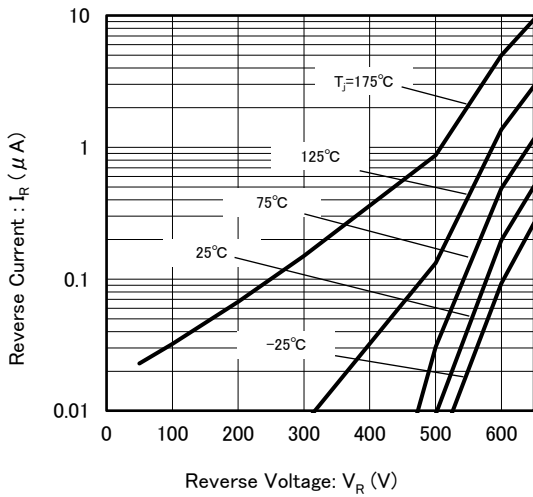
(1) Forward Current vs. Forward Voltage



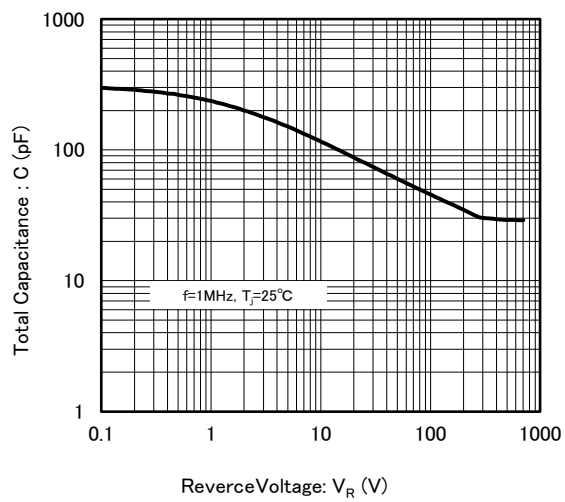
(2) Forward Current vs. Forward Voltage



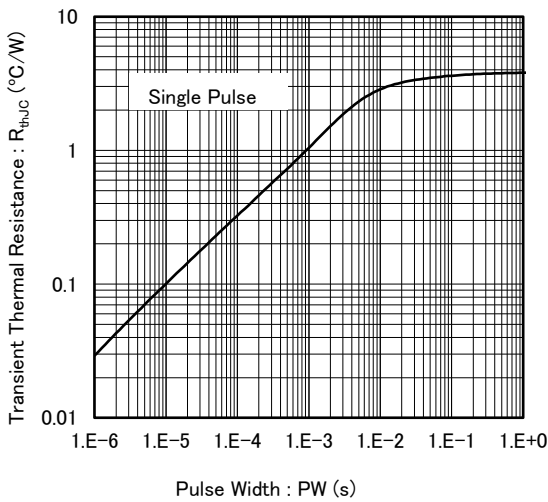
(3) Reverse Current vs. Reverse Voltage



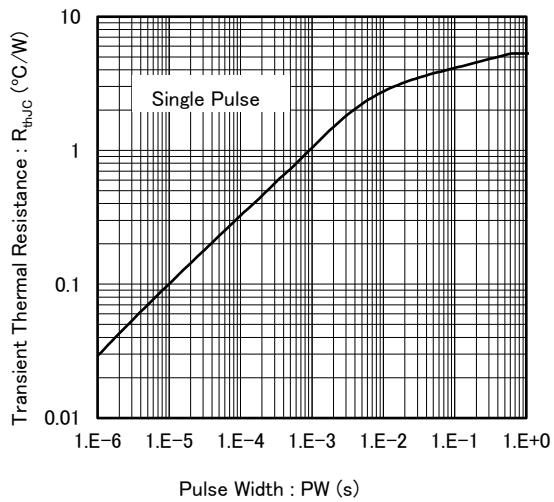
(4) Terminal Capacitance vs. Reverse Voltage



(5) Transient Thermal Resistance TO-220AC

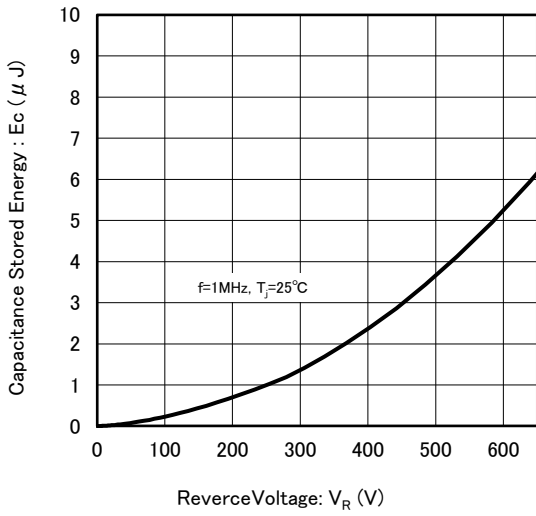


(6) Transient Thermal Resistance TO-220FM-2

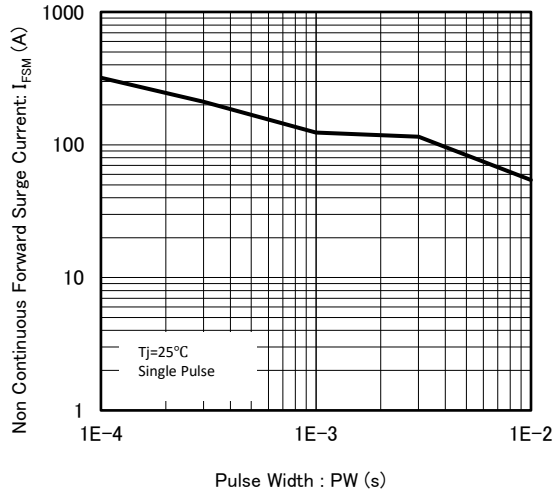


## TYPICAL PERFORMANCE CHARACTERISTICS

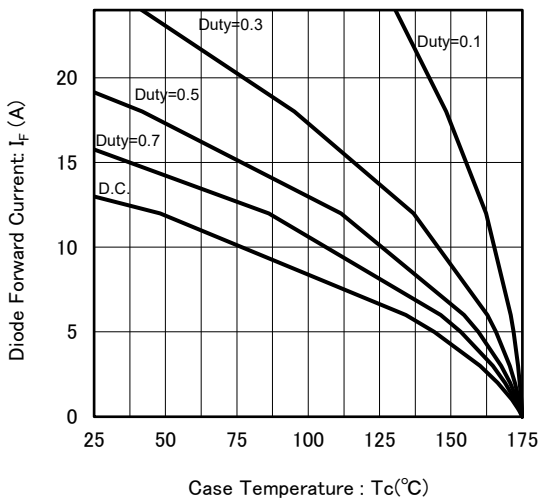
(7) Capacitance Stored Energy



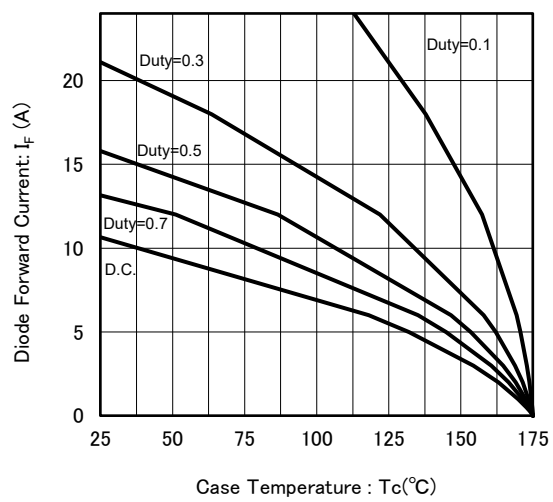
(8) Non-Continuous Forward Surge Current



(9) MAX Forward Current vs. Case Temperature TO-220AC



(10) MAX Forward Current vs. Case Temperature TO-220FM-2



## ■ PACKAGING INFORMATION

For the latest package information go to, [www.torexsemi.com/technical-support/packages](http://www.torexsemi.com/technical-support/packages)

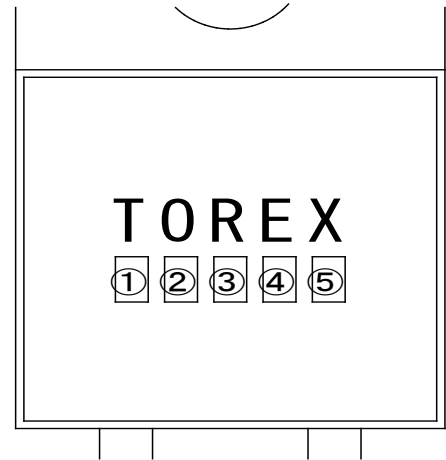
PACKAGE	OUTLINE / LAND PATTERN	THERMAL CHARACTERISTICS
TO-220AC	<a href="#">TO-220AC PKG</a>	-
TO-220FM-2	<a href="#">TO-220FM-2 PKG</a>	-

## MARKING RULE

Mark①,②,③ Indicates product classification.

Symbol			Product Name
①	②	③	
C	2	1	XBSC41A066

TO-220AC/TO-220FM-2



Mark④,⑤ Represents the manufacturing lot. Repeats the sequence 01~09, 0A~0Z, 11~9Z, A1~A9, AA~AZ, B1~ZZ.  
(However, excluding G, I, J, O, Q, and W. Do not use inverted characters.)

1. The product and product specifications contained herein are subject to change without notice to improve performance characteristics. Consult us, or our representatives before use, to confirm that the information in this datasheet is up to date.
2. The information in this datasheet is intended to illustrate the operation and characteristics of our products. We neither make warranties or representations with respect to the accuracy or completeness of the information contained in this datasheet nor grant any license to any intellectual property rights of ours or any third party concerning with the information in this datasheet.
3. Applicable export control laws and regulations should be complied and the procedures required by such laws and regulations should also be followed, when the product or any information contained in this datasheet is exported.
4. The product is neither intended nor warranted for use in equipment of systems which require extremely high levels of quality and/or reliability and/or a malfunction or failure which may cause loss of human life, bodily injury, serious property damage including but not limited to devices or equipment used in 1) nuclear facilities, 2) aerospace industry, 3) medical facilities, 4) automobile industry and other transportation industry and 5) safety devices and safety equipment to control combustions and explosions. Do not use the product for the above use unless agreed by us in writing in advance.
5. Although we make continuous efforts to improve the quality and reliability of our products; nevertheless, Semiconductors are likely to fail with a certain probability. So, in order to prevent personal injury and/or property damage resulting from such failure, customers are required to incorporate adequate safety measures in their designs, such as system fail safes, redundancy and fire prevention features.
6. Our products are not designed to be Radiation-resistant.
7. Please use the product listed in this datasheet within the specified ranges.
8. We assume no responsibility for damage or loss due to abnormal use.
9. All rights reserved. No part of this datasheet may be copied or reproduced unless agreed by Torex Semiconductor Ltd in writing in advance.

TOREX SEMICONDUCTOR LTD.