

$V_{RM} = 600\text{ V}$ ,  $I_{F(AV)} = 60\text{ A}$ ,  $t_{rr} = 50\text{ ns}$   
Fast Recovery Diode  
**CTXS-5606S**

**Description**

The CTXS-5606S is a fast recovery diode of 600 V, 60 A. The maximum  $t_{rr}$  of 50 ns is realized by optimizing a life-time control. The low thermal resistance package achieves high performance in terms of heat dissipation.

**Features**

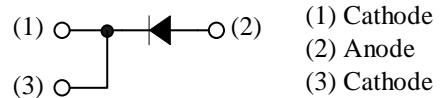
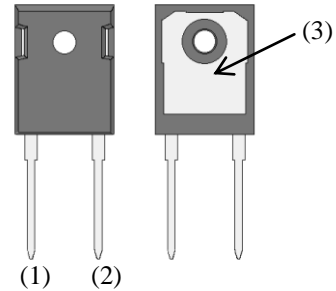
- Bare Lead Frame: Pb-free (RoHS Compliant)
- $V_{RM}$ ----- 600 V
- $I_{F(AV)}$ ----- 60 A
- $V_F$ ----- 1.7 V
- $t_{rr}$ ----- 50 ns

**Applications**

- CCM PFC Circuit
- Secondary Side Rectifier Diode  
(Flyback Converter, LLC Converter, etc.)
- Freewheel Diode  
(Bridge Circuit, Offline Buck and Buck-boost Converter, etc.)

**Package**

TO247-2L



Not to scale

## CTXS-5606S

### Absolute Maximum Ratings

Unless otherwise specified,  $T_A = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Rating	Unit	Conditions
Peak Repetitive Reverse Voltage	$V_{RSM}$	600	V	
Repetitive Reverse Voltage	$V_{RM}$	600	V	
Average Forward Current	$I_{F(AV)}$	60	A	See Figure 1 and Figure 2
Surge Forward Current	$I_{FSM}$	320	A	Half cycle sine wave, positive side, 10 ms, 1 shot
$I^2t$ Limiting Value	$I^2t$	512	$A^2s$	$1\text{ ms} \leq t \leq 10\text{ ms}$
Junction Temperature	$T_J$	-40 to 150	$^\circ\text{C}$	
Storage Temperature	$T_{STG}$	-40 to 150	$^\circ\text{C}$	

### Electrical Characteristics

Unless otherwise specified,  $T_A = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage Drop	$V_F$	$T_J = 25\text{ }^\circ\text{C}$ , $I_F = 60\text{ A}$	—	—	1.7	V
		$T_J = 100\text{ }^\circ\text{C}$ , $I_F = 60\text{ A}$	—	1.35	—	V
Reverse Leakage Current	$I_R$	$V_R = V_{RM}$ ,	—	—	200	$\mu\text{A}$
Reverse Leakage Current Under High Temperature	$H \cdot I_R$	$V_R = V_{RM}$ , $T_J = 150\text{ }^\circ\text{C}$	—	—	60	mA
Reverse Recovery Time	$t_{rr}$	$I_F = I_{RP} = 100\text{ mA}$ 90% recovery point, $T_J = 25\text{ }^\circ\text{C}$	—	—	50	ns
Thermal Resistance <sup>(1)</sup>	$R_{th(J-C)}$		—	—	1.5	$^\circ\text{C/W}$

<sup>(1)</sup>  $R_{th(J-C)}$  is thermal resistance between junction and case.

Rating and Characteristic Curves

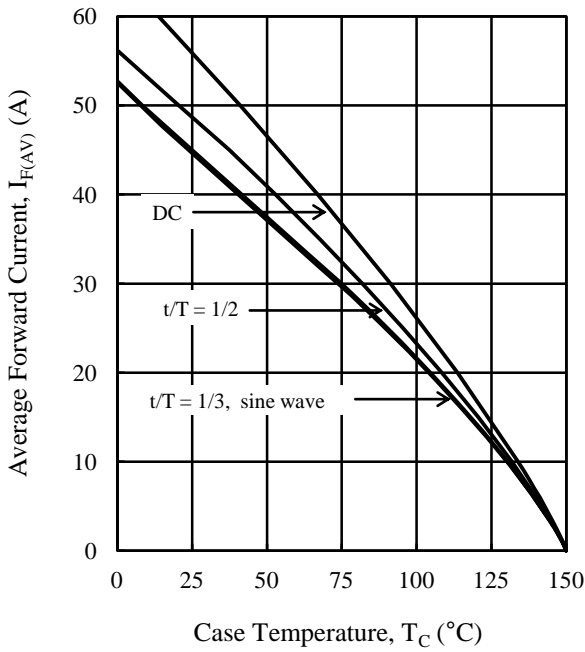


Figure 1.  $T_C$  vs.  $I_F$  Typical Characteristics ( $V_R = 0$  V)

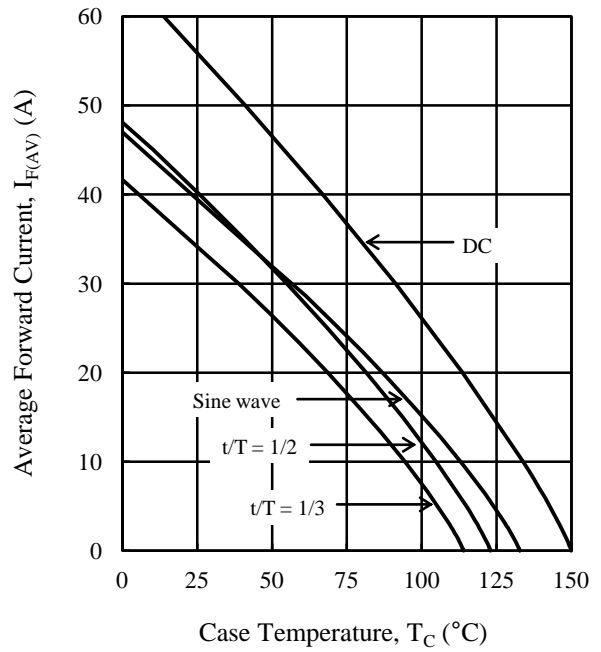


Figure 2.  $T_C$  vs.  $I_F$  Typical Characteristics ( $V_R = 600$  V)

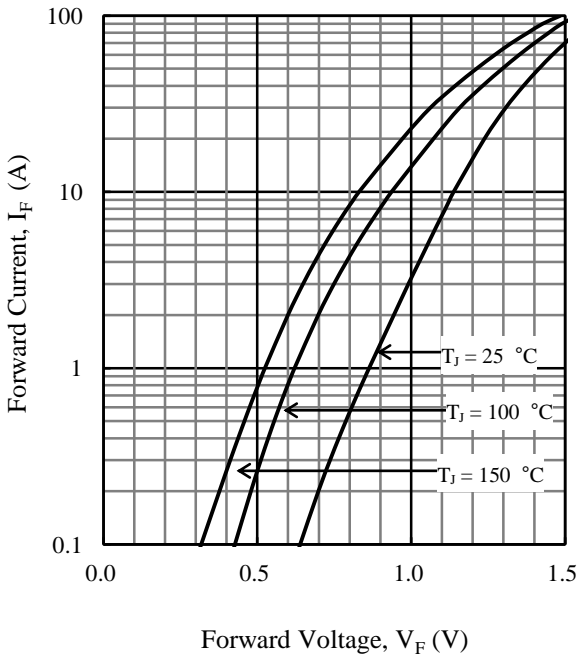


Figure 3.  $V_F$  vs.  $I_F$  Typical Characteristics

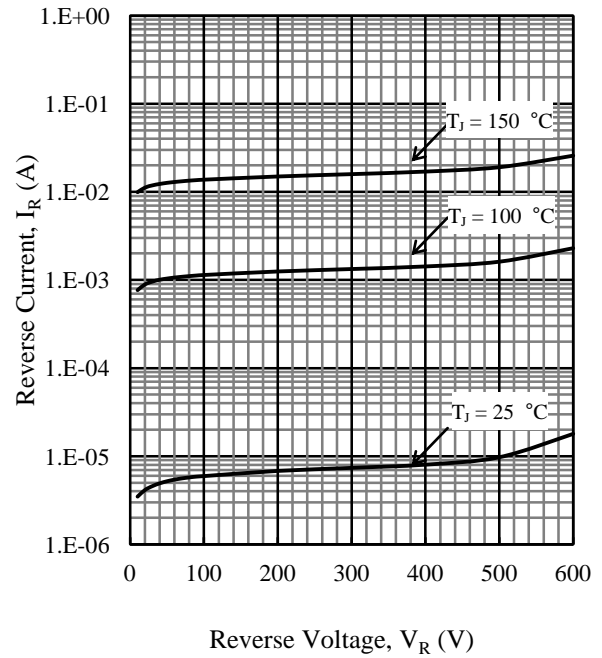
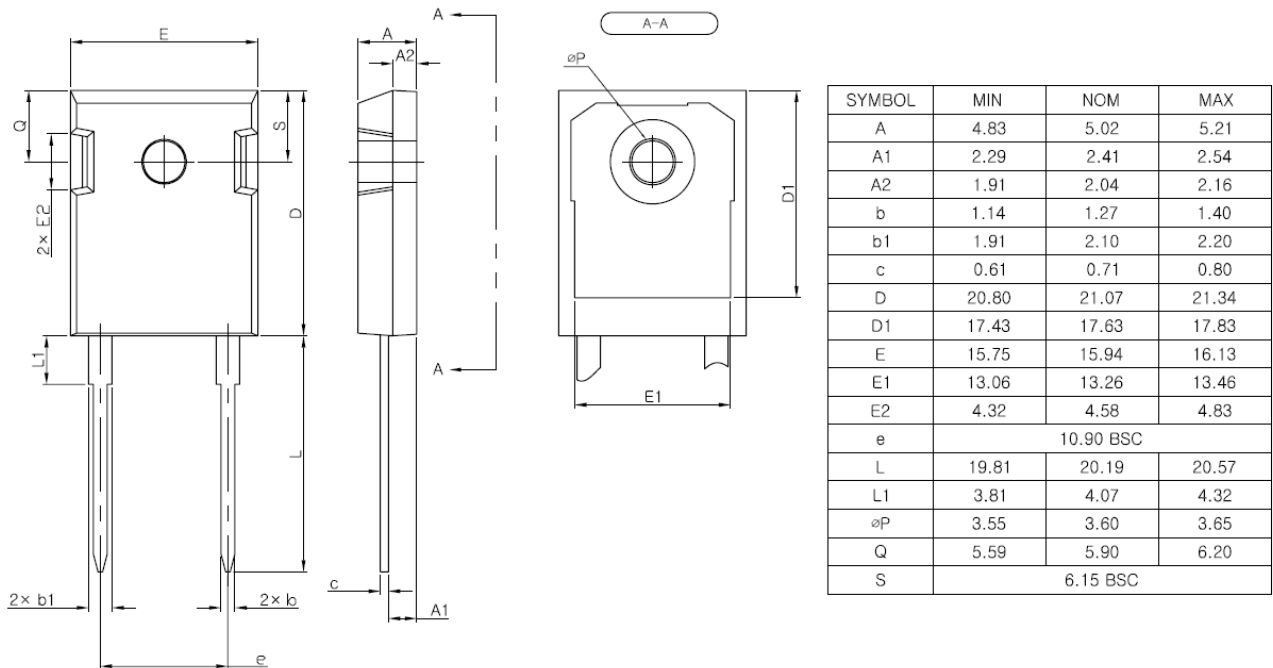


Figure 4.  $V_R$  vs.  $I_R$  Typical Characteristics

# CTXS-5606S

## Physical Dimension

### • TO252-2L



### NOTES:

- Dimensions in millimeters
- These dimensions do not include protrusions of the mold.
- Bare lead frame: Pb-free (RoHS compliant)
- Recommended screw torque for TO247: 0.686 N·m to 0.882 N·m (7 kgf·cm to 9 kgf·cm)
- When soldering the products, make sure to minimize the working time, within the following limits:
  - Flow:  $260 \pm 5 \text{ }^\circ\text{C} / 10 \pm 1 \text{ s}$ , 2 times
  - Soldering Iron:  $380 \pm 10 \text{ }^\circ\text{C} / 3.5 \pm 0.5 \text{ s}$ , 1 time

**Marking Diagram**

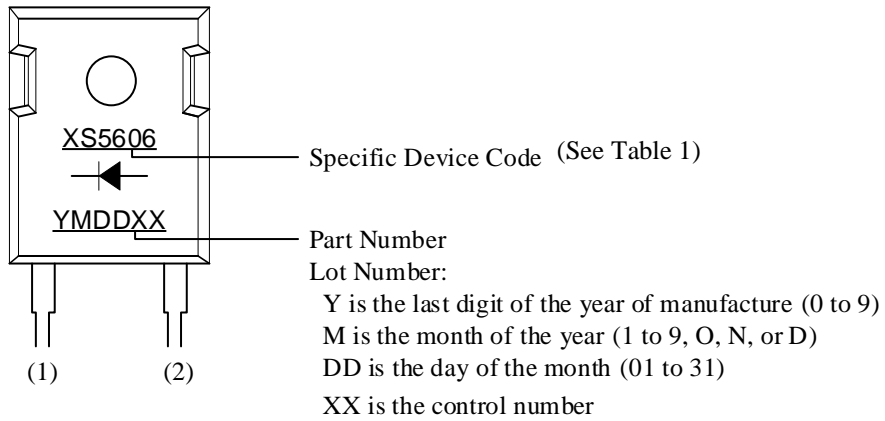


Table 1. Specific Device Code

Specific Device Code	Part Number
XS5606	CTXS-5606S

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