V_{RM} = 600 V, $I_{F(AV)}$ = 30 A, t_{rr} = 35 ns
Fast Recovery Diode

CTXS-5306S

Data Sheet

Description

The CTXS-5306S is a fast recovery diode of 600 V / 30 A. The maximum t_{rr} of 35 ns is realized by optimizing a life-time control. The low thermal resistance package achieves high performance in terms of heat dissipation.

Features

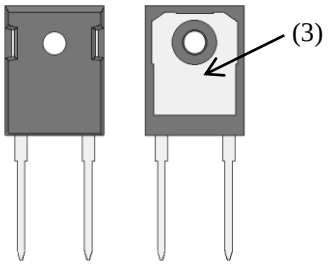
- V_{RM} ---------- 600 V
- $I_{F(AV)}$ ---------- 30 A
- V_F ---------- 1.7 V
- t_{rr} ---------- 35 ns
- Bare Lead Frame: Pb-free (RoHS Compliant)
- Flammability: Equivalent to UL94V-0

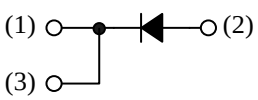
Applications

- PFC Circuit
- Inverter Circuit
- Secondary-side Rectifier Diode
  (Flyback Converter, LLC Converter, etc.)
- Freewheel Diode
  (Offline Buck Converter, Offline Buck-boost Converter, etc.)

Package

TO247-2L





(1) Cathode
(2) Anode
(3) Cathode

Not to scale

Absolute Maximum Ratings

Unless otherwise specified, T_A = 25 °C.

Parameter	Symbol	Conditions	Rating	Unit
Nonrepetitive Peak Reverse Voltage	V_{RSM}		600	V
Repetitive Peak Reverse Voltage	V_{RM}		600	V
Average Forward Current	$I_{F(AV)}$	See Figure 1 and Figure 2	30	A
Surge Forward Current	I_{FSM}	Half cycle sine-wave, positive side, 10 ms, 1 shot	160	A
I^2t Limiting Value	I^2t	1 ms ≤ t ≤ 10 ms	128	A^2s
Junction Temperature	T_J		−40 to 150	°C
Storage Temperature	T_{STG}		−40 to 150	°C

Electrical Characteristics

Unless otherwise specified, T_A = 25 °C.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage Drop	V_F	T_J = 25 °C, I_F = 30 A	—	—	1.7	V
		T_J = 100 °C, I_F = 30 A	—	1.35	—	V
Reverse Leakage Current	I_R	$V_R = V_{RM}$	—	—	100	μA
Reverse Leakage Current under High Temperature	$H \cdot I_R$	$V_R = V_{RM}$, T_J = 150 °C	—	—	30	mA
Reverse Recovery Time	t_{rr}	$I_F = I_{RP}$ = 500 mA, 90% recovery point, T_J = 25 °C	—	—	35	ns
Thermal Resistance [1]	$R_{th(J-C)}$		—	—	1.5	°C/W

Mechanical Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Heatsink Mounting Screw Torque		0.686	—	0.882	N·m

[1] $R_{th\ (J-C)}$ is thermal resistance between junction and case

Rating and Characteristic Curves

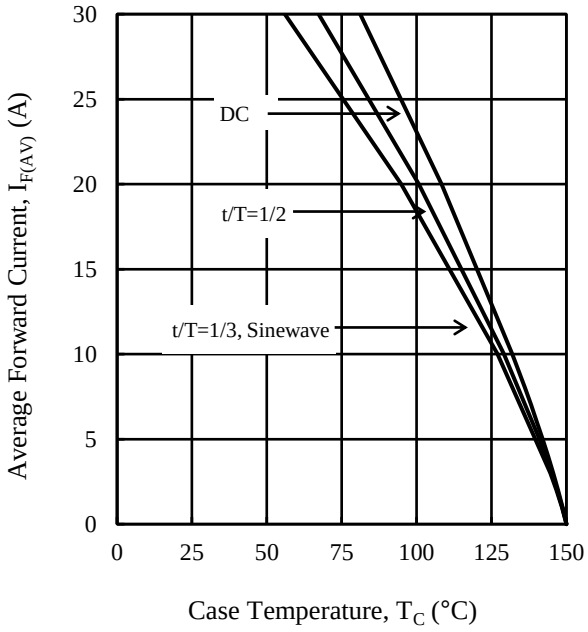


Figure 1. Typical Characteristics: $I_{F(AV)}$ vs. T_C (V_R = 0 V)

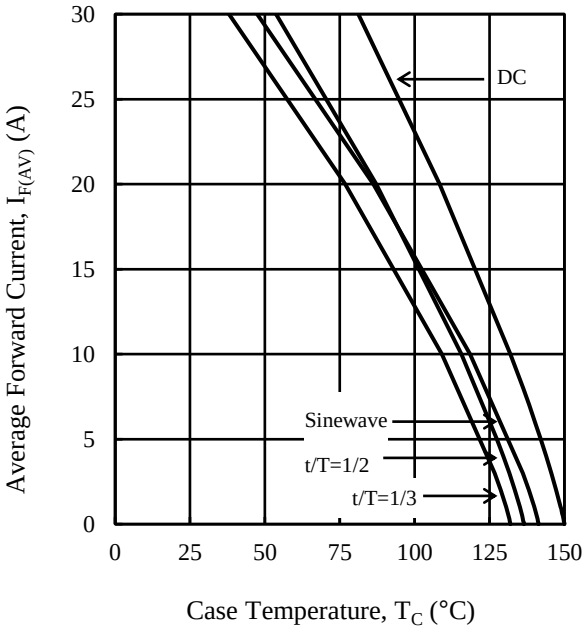


Figure 2. Typical Characteristics $I_{F(AV)}$ vs. T_C (V_R = 600 V)

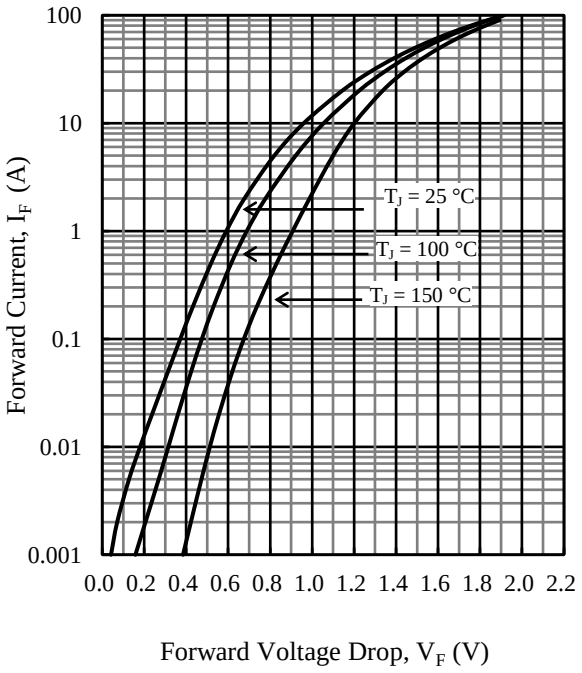


Figure 3. Typical Characteristics: I_F vs. V_F

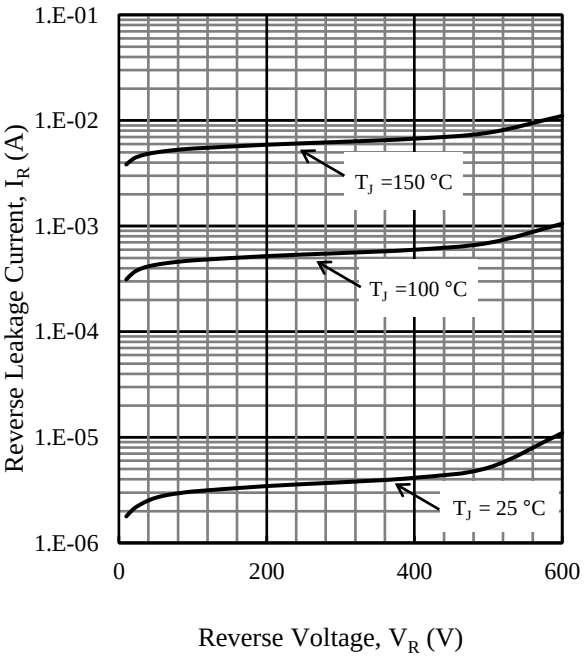
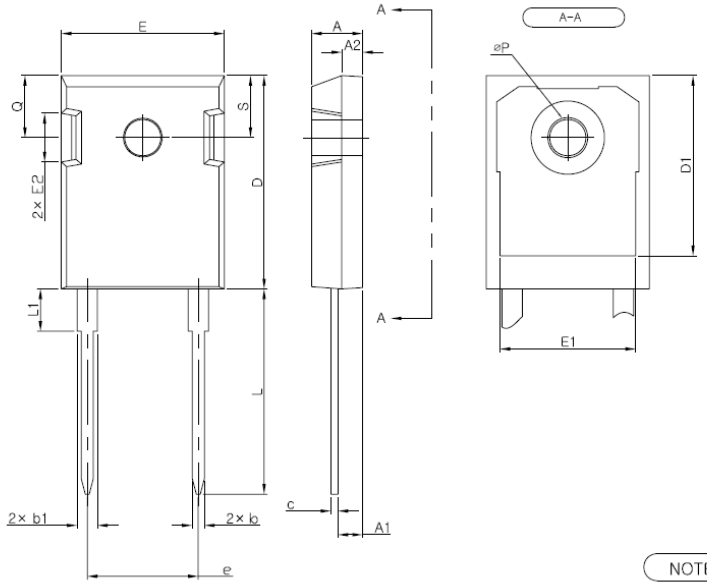


Figure 4. Typical Characteristics: I_R vs. V_R

Physical Dimensions

● **TO247-2L**



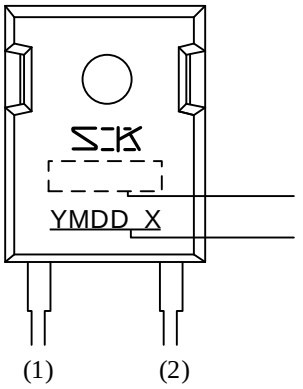
SYMBOL	MIN	NOM	MAX
A	4.83	5.02	5.21
A1	2.29	2.41	2.54
A2	1.91	2.04	2.16
b	1.14	1.27	1.40
b1	1.91	2.10	2.20
c	0.61	0.71	0.80
D	20.80	21.07	21.34
D1	17.43	17.63	17.83
E	15.75	15.94	16.13
E1	13.06	13.26	13.46
E2	4.32	4.58	4.83
e	10.90 BSC		
L	19.81	20.19	20.57
L1	3.81	4.07	4.32
øP	3.55	3.60	3.65
Q	5.59	5.90	6.20
S	6.15 BSC		

NOTE
1. THESE DIMENSION DO NOT INCLUDE MOLD PROTRUSION

NOTES:

- Dimensions in millimeters
- Bare lead frame: Pb-free (RoHS compliant)
- When soldering the products, it is required to minimize the working time within the following limits:
  Flow: 260 ± 5 °C / 10 ± 1 s, 2 times
  Soldering Iron: 380 ± 10 °C / 3.5 ± 0.5 s, 1 time (Soldering should be at a distance of at least 1.5 mm from the body of the products.)

Marking Diagram



Specific Device Code (see Table 1)

Lot Number:
Y is the last digit of the year of manufacture (0 to 9)
M is the month of the year (1 to 9, O, N or D)
DD is the day of the month (01 to 31)
X is the control number

Table 1. Specific Device Code

Specific Device Code	Part Number
XS5306	CTXS-5306S

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