

ASC75D1700DT2

1700V, 75A, 687nC, Silicon Carbide Schottky Diode

Product Data Sheet

ASTC-3T04-74A A/0



爱仕特科技
AST TECHNOLOGY

General Description

The AST-DT2 series SiC Diode in a TO-247-2L package delivers ultra-low conduction loss and rugged reliability for high-frequency switched-mode power supplies, with safe paralleling capability and automotive-grade compliance.



Features

- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Max Junction Temperature 175°C
- 100% Avalanche (UIL) Tested
- Temperature Independent Switching Characteristics
- High-Speed Switching



Applications

- Motor Drives
- Photovoltaic
- Uninterruptible Power Supply (UPS)
- Switched-Mode Power Supplies (SMPS)
- Power Factor Correction (PFC)
- Wind Power
- Locomotive Traction

Ordering Informations

Order Number / Marking	ASC75D1700DT2
Package Type	TO-247-2L
Packing Method	Tube

Key Parameters

Symbol	Parameter	Values			Unit	Test Conditions
Absolute maximum rating						
V _{RRM}	Repetitive Peak Reverse Voltage	1700			V	T _c =25°C
I _F	Continuous Forward Current	75			A	T _c =150°C
T _{VJ} ; T _{STG}	Operating Junction and Storage Temperature	-55 to 175			°C	
Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
Static characteristics						
V _F	Forward Voltage	-	1.60	1.80	V	I _F =75A; T _{VJ} =25°C
		-	2.5	-		I _F =75A; T _{VJ} =175°C
Dynamic characteristics						
Q _C	Total Capacitive Charge	-	687	-	nC	V _R =1700V; T _{VJ} =25°C



Absolute Maximum Ratings (at $T_{VJ}=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Values	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	1700	V	$T_C=25^{\circ}\text{C}$
I_F	Continuous Forward Current	202	A	$T_C=25^{\circ}\text{C}$
		75		$T_C=150^{\circ}\text{C}$
I_{FSM}	Non-Repetitive Forward Surge Current	600	A	$T_C=25^{\circ}\text{C}$; $t_p=10\text{ms}$, Half Sine Pulse
		550		$T_C=110^{\circ}\text{C}$; $t_p=10\text{ms}$, Half Sine Pulse
I_{FRM}	Repetitive Forward Surge Current	300	A	$T_C=25^{\circ}\text{C}$; $t_p=10\text{ms}$, Half Sine Pulse
		275		$T_C=110^{\circ}\text{C}$; $t_p=10\text{ms}$, Half Sine Pulse
P_{tot}	Power Dissipation for $R_{th(j-c,max)}$	882	W	$T_C=25^{\circ}\text{C}$
T_{VJ} ; T_{STG}	Operating Junction and Storage Temperature	-55 to 175	$^{\circ}\text{C}$	

Electrical Characteristics (at $T_{VJ}=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
V_{DC}	DC Blocking Voltage	1700	-	-	V	$I_R=100\mu\text{A}$
V_F	Forward Voltage	-	1.60	1.80	V	$I_F=75\text{A}$; $T_{VJ}=25^{\circ}\text{C}$
		-	2.5	-		$I_F=75\text{A}$; $T_{VJ}=175^{\circ}\text{C}$
I_R	Reverse Current	-	5	100	μA	$V_R=1700\text{V}$; $T_{VJ}=25^{\circ}\text{C}$
		-	50	200		$V_R=1700\text{V}$; $T_{VJ}=175^{\circ}\text{C}$
Q_C	Total Capacitive Charge	-	687	-	nC	$V_R=1700\text{V}$, $T_J=25^{\circ}\text{C}$
C	Total Capacitance	-	8400	-	pF	$V_R=0\text{V}$; $f=1\text{MHz}$
		-	278	-		$V_R=800\text{V}$; $f=1\text{MHz}$
		-	239	-		$V_R=1700\text{V}$; $f=1\text{MHz}$
E_C	Capacitance Stored Energy	-	410	-	μJ	$V_R=1200\text{V}$

Thermal Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case	-	0.170	-	$^{\circ}\text{C/W}$

Typical Performance

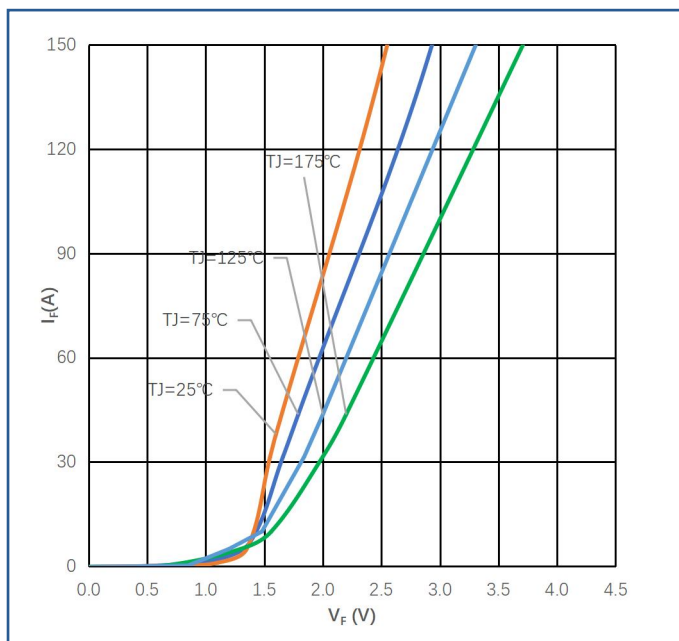


Figure 1

Forward Characteristics

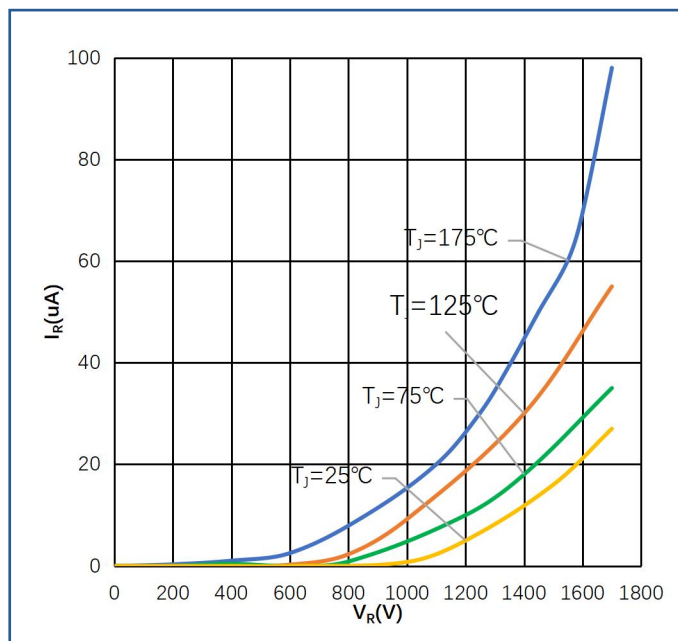


Figure 2

Reverse Characteristics

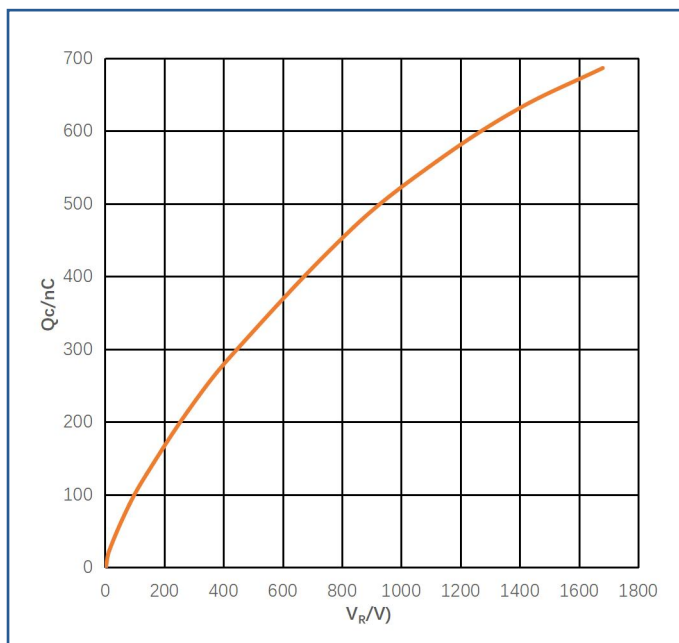


Figure 3

Reverse Charge vs. Reverse Voltage

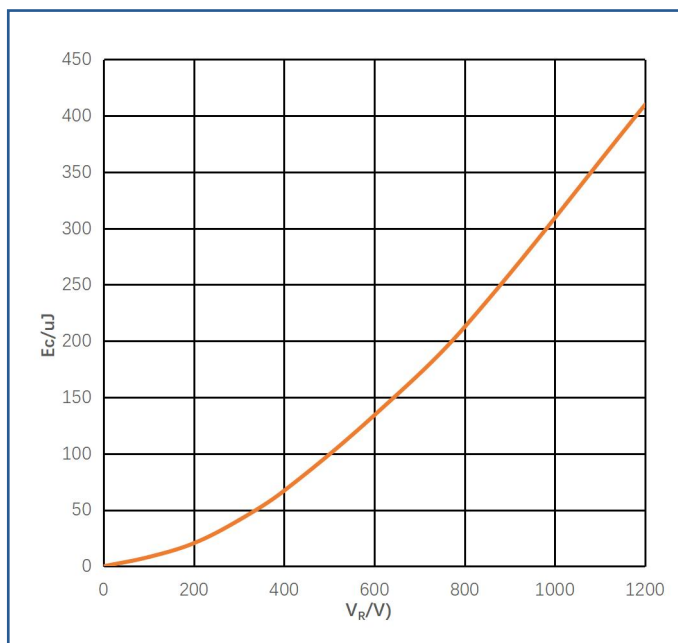


Figure 4

Capacitance Stored Energy

Typical Performance

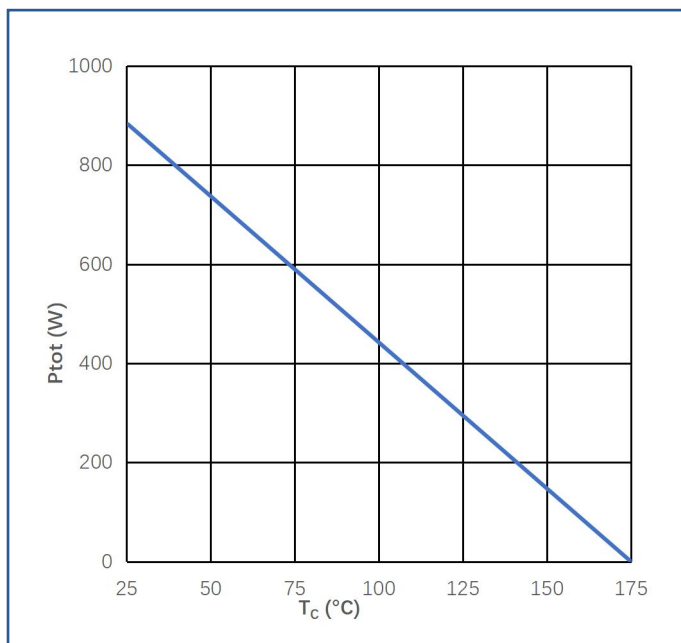


Figure 5
Power Derating

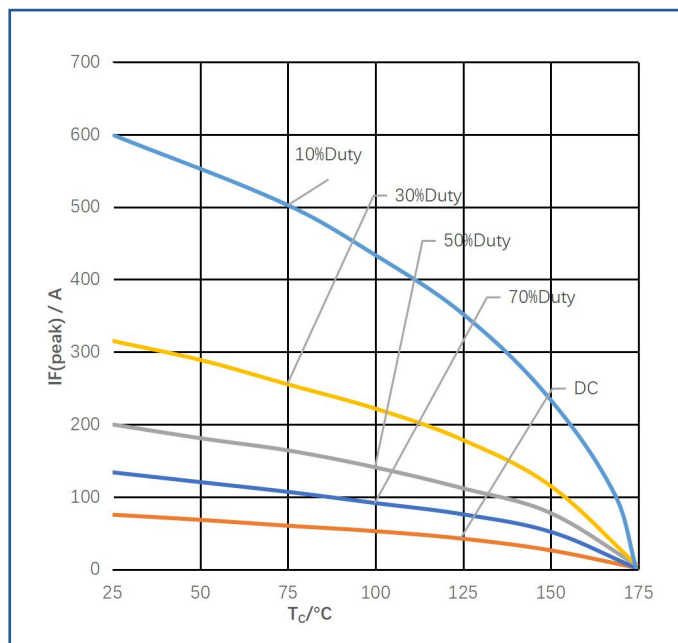


Figure 6
Current Derating

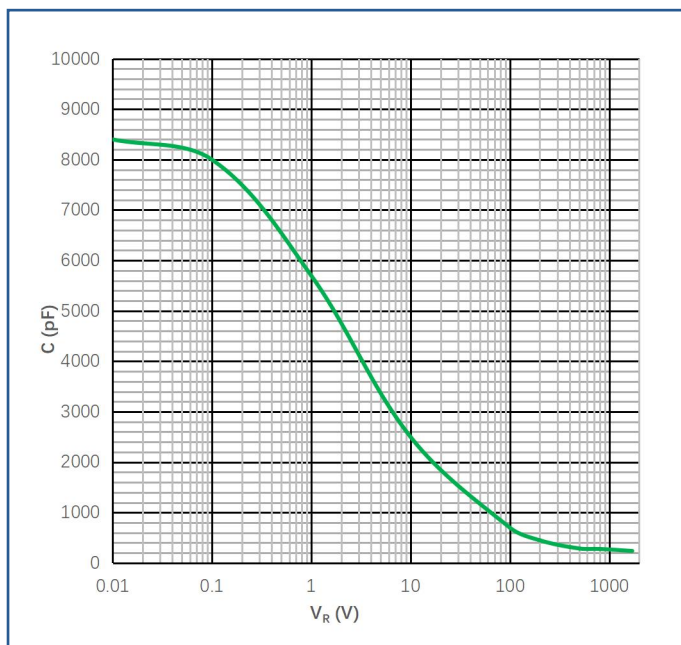


Figure 7
Capacitance vs. Reverse Voltage

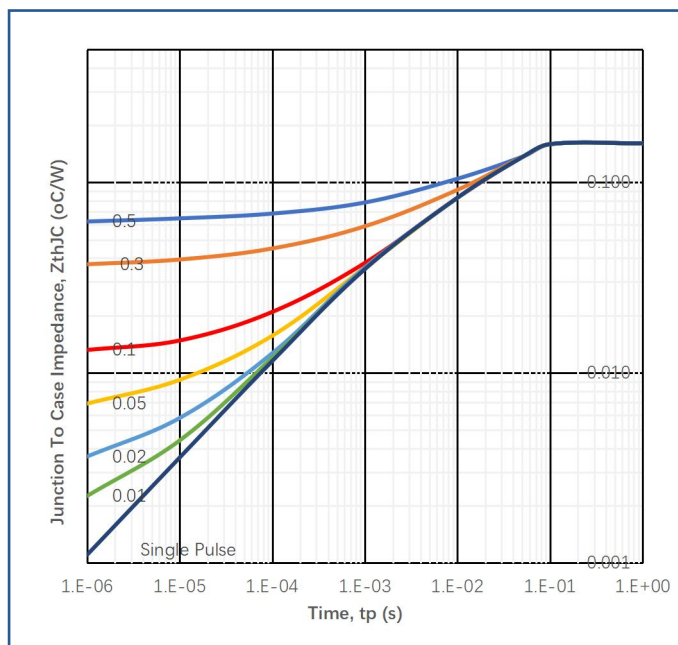
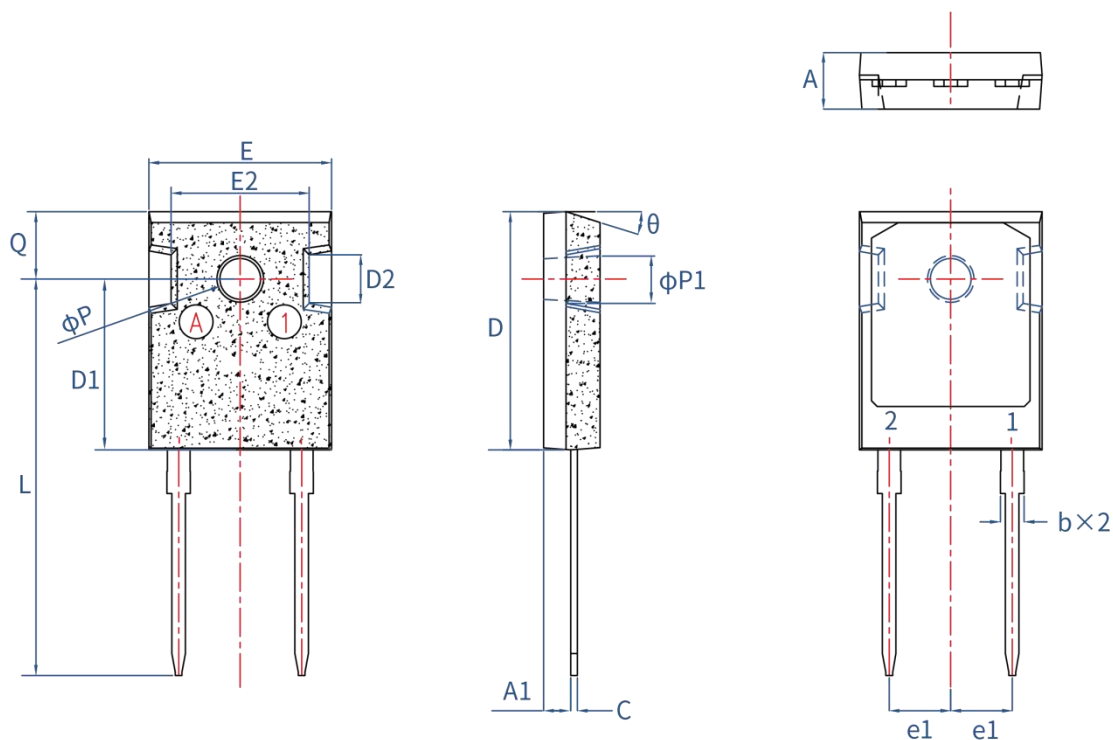


Figure 8
Transient Thermal Impedance

Package Dimensions

(mm)

Package Type: TO-247-2L



Symbol	Millimeters		
	Min.	Type.	Max.
A	4.80	5.00	5.20
A1	2.25	2.40	2.55
b	2.03	2.65	2.10
C	0.55	0.60	0.65
D	20.80	21.00	21.20
D1	15.11		
D2	4.30		
e1	5.29	5.44	5.59
E	15.95	16.15	16.35
E1	12.00	12.20	12.40
L	34.65	35.05	35.45
Q	5.85	5.95	6.05
ϕP	3.45	3.60	3.75
$\phi P1$	4.12		
θ	17.50°		

Pin	Symbol	Description
1	K	cathode
2	A	anode
mb	mb	mounting base; connected to cathode

Note:

1. All metal surfaces are Sn plated (matte), except area of cut.
2. Burr or mold flash size (0.5 mm) is not included in the dimensions.

Notes & Disclaimer

This document and the information contained herein are subject to change without notice. Any such change shall be evidenced by the publication of an updated version of this document by AST Technology. No communication from any employee or agent of AST Technology or any third party shall effect an amendment or modification of this document.

With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, AST Technology hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

Any information given in this document is subject to customer's compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer's products and any use of the product of AST Technology in customer's applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer's technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

Except as otherwise explicitly approved by AST Technology in a written document signed by authorized representatives, the products of AST Technology may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.

Contact Info

Tel: +86 755-89300160

Web: <http://www.astsic.com/>

Add: No.1 Rongtian Rd., Pingshan, Shenzhen, China

@2025 Shenzhen AST Technology Company. All Rights Reserved.