

Silicon Carbide Schottky Diode

**Feature**

- z 1200V/7A
- z 100% DVDS
- z Reliable and Rugged
- z Halogen Free and Green Devices Available  
(RoHS Compliant)

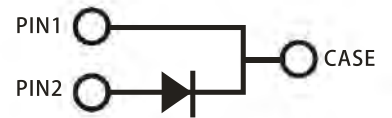
**Pin Description**



Pin 1                  Pin 2  
TO-220AB-2L


**Applications**

- z Solar inverters
- z Industrial Switched Mode Power Supplies
- z Uninterruptible & AUX Power Supplies
- z Boost for PFC & DC-DC Stages



SiC Schottky Diode

**Ordering and Marking Information**

 <p>P2 <b>HYB07120</b> XYMXXXXXX</p>	<p>Package Code P2: TO-220AB-2L</p> <p>Date Code XYMXXXXXX</p>
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Note: HUAYI halogen free products contain molding compounds/die attach materials and 100% matte tin plate Termination finish; which are fully compliant with RoHS. HUAYI halogen free products meet or exceed the halogen free requirements of IPC/JEDEC J-STD-020 for MSL classification at halogen free peak reflow temperature. HUAYI defines 'Green' to mean halogen free (RoHS compliant) and halogen free (Br or Cl does not exceed 900ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500ppm by weight).

HUAYI reserves the right to make changes, corrections, enhancements, modifications, and improvements to this product and/or to this document at any time without notice.

## Key Performance and Package Parameters

Type	VDC	IF	TJ,MAX	Qualification
HYB07120P2	1200V	7A	175C	Industrial

Package Type	Unit	Quantity
TO-220AB-2L	Tube	50

## SiC Schottky Diode Absolute Maximum Ratings

671740

Symbol	Parameter	Rating	Unit
Common Ratings (Tc=25C Unless Otherwise Noted)			
VRRM	Repetitive peak reverse voltage	1200	V
IF	Continuous Forward Current	Tc=25C	26.7
		Tc=161C	7
IFSM	Non-Repetitive Forward Surge Current	tp=10ms,Half sine pulse	45

IF,MAX

SiC Schottky Diode Characteristics (Tc =25°C Unless Otherwise Noted)

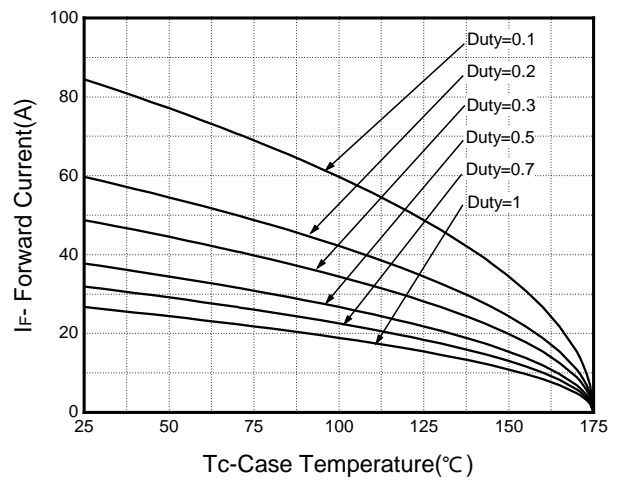
Symbol	Parameter	Test Conditions	HYB07120			Unit
			Min	Typ.	Max	
Static Characteristics						
V <sub>DC</sub>	DC blocking voltage	I <sub>R</sub> =200 A	1200	-	-	V
V <sub>F</sub>	Diode forward voltage	I <sub>F</sub> =7A, T <sub>C</sub> =25°C	-	1.3	2.0	V
		I <sub>F</sub> =7A, T <sub>C</sub> =175°C	-	1.7	-	V
I <sub>R</sub>	Reverse current	V <sub>R</sub> =1200V, T <sub>C</sub> =25°C	-	2.0	120	A
		V <sub>R</sub> =1200V, T <sub>C</sub> =175°C	-	5.0	-	A
Dynamic Characteristics						
Q <sub>C</sub>	Total capacitive charge	V <sub>R</sub> =800V	-	53	-	nC
C	Total Capacitance	V <sub>R</sub> =0V, f=100kHz	-	755	-	pF
		V <sub>R</sub> =400V, f=100kHz	-	50	-	
		V <sub>R</sub> =800V, f=100kHz	-	41.6	-	
E <sub>C</sub>	Capacitance Stored Energy	V <sub>R</sub> =800V	-	27	-	J

Note: \*Pulse test, pulse width "300us, duty cycle "2%

SiC Schottky Diode Typical Operating Characteristics

Figure 1: Power Dissipation

Figure 2: Diode forward Current



SiC Schottky Diode Typical Operating Characteristics

Figure 3: Forward Characteristics

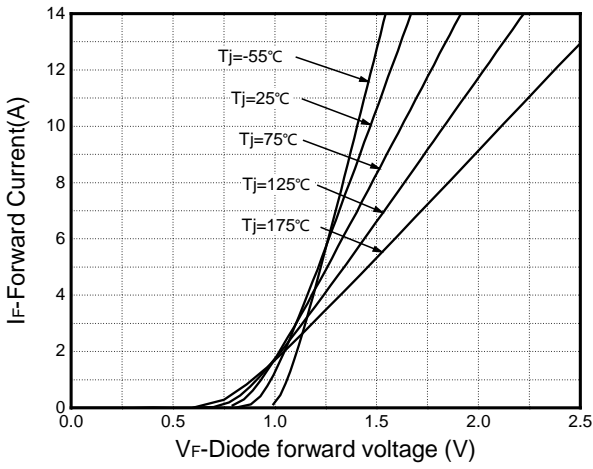


Figure 4: Reverse Characteristics

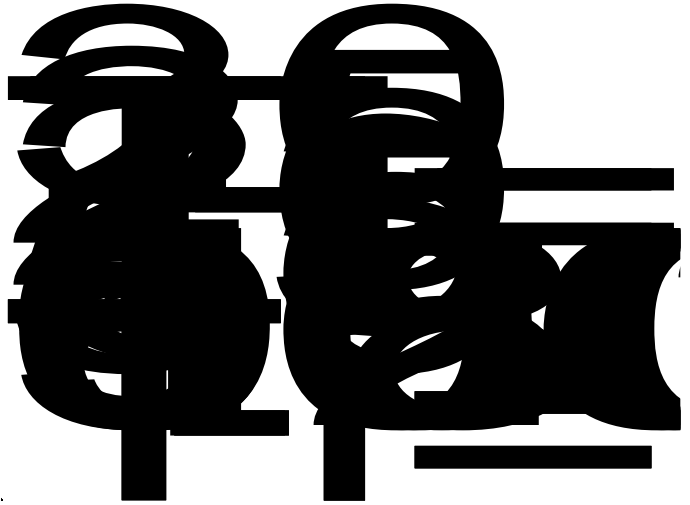


Figure 5: Recovery Charge vs. V<sub>R</sub>

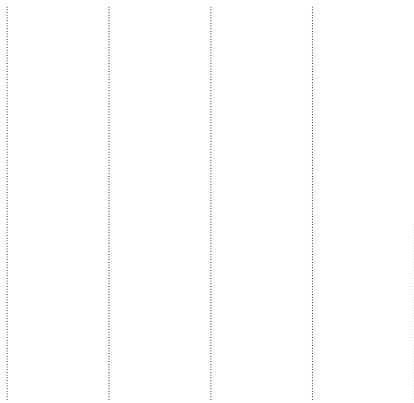


Figure 6: Capacitance vs. V<sub>R</sub>

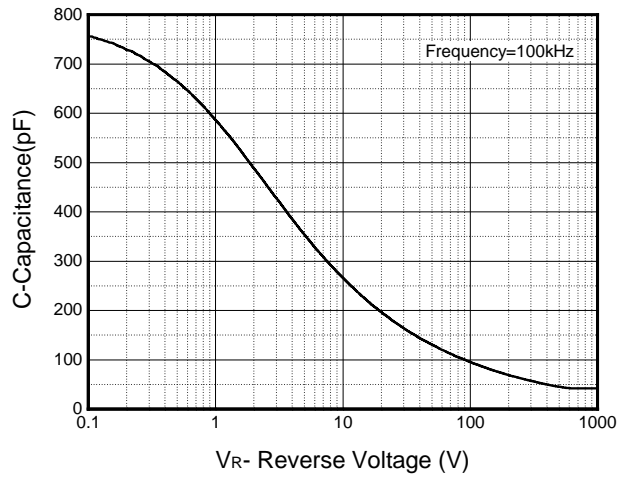


Figure 7: Capacitance Stored Energy

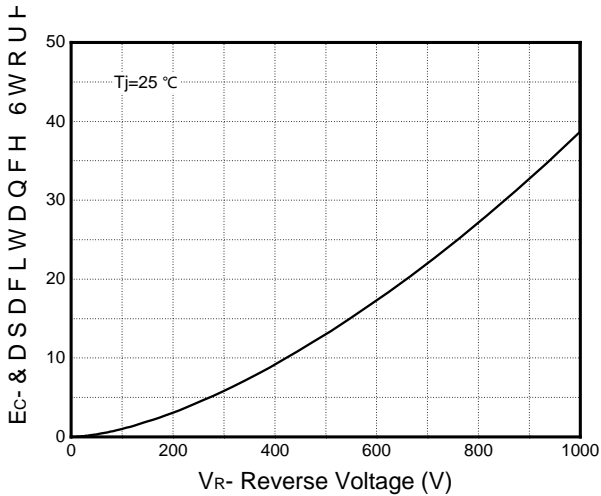
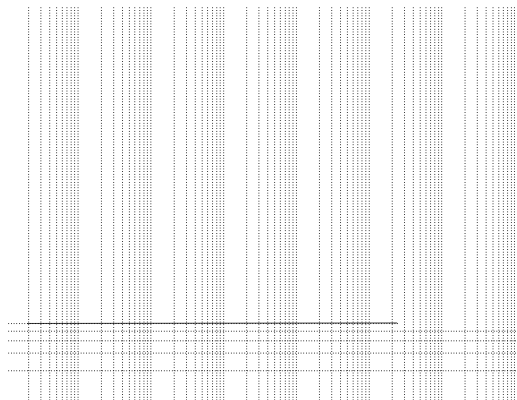


Figure 8: Transient Thermal Impedance



## Package Information

TO-220AB-2L

(unit:mm)

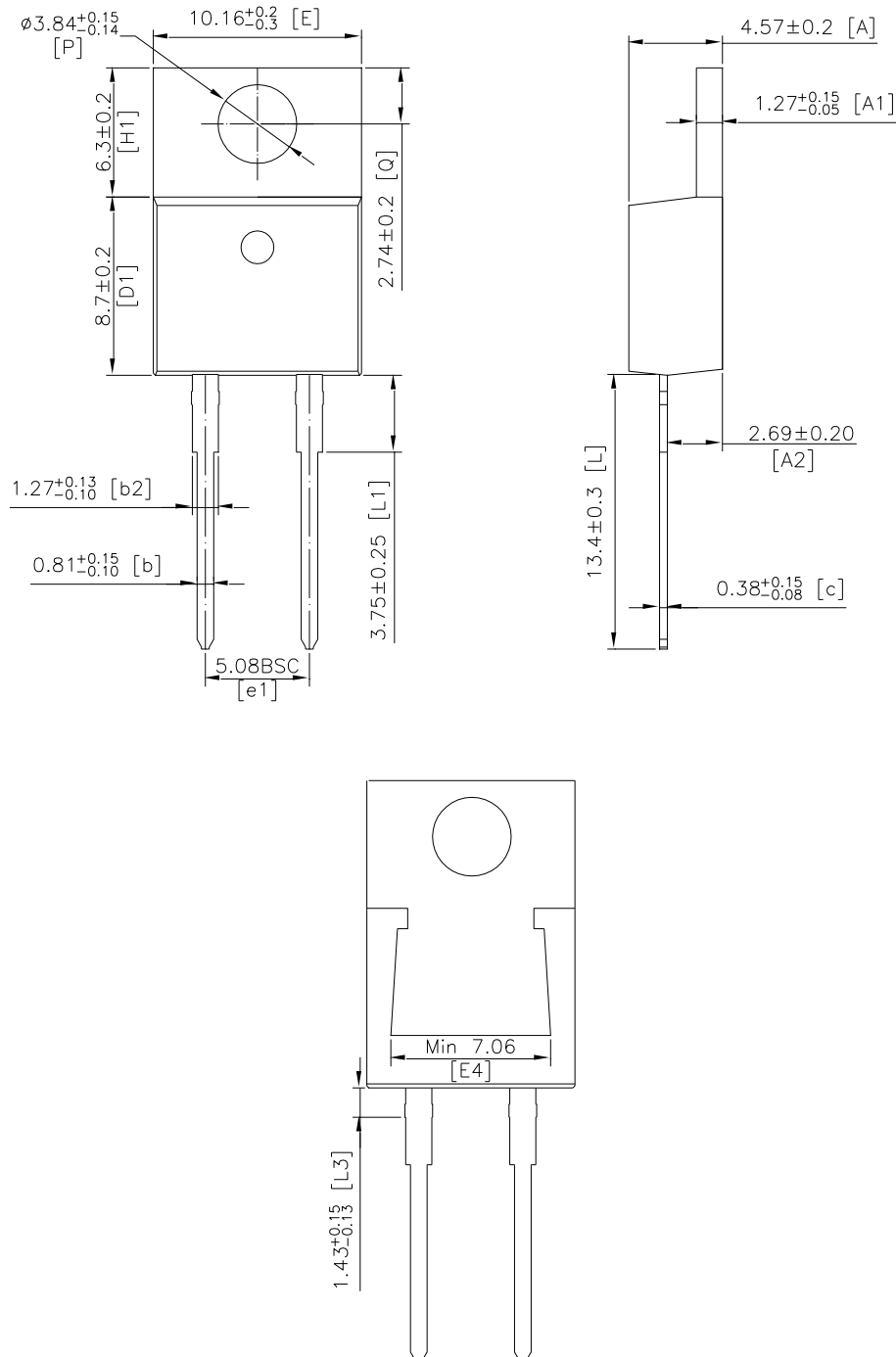




Table 1.SnPb Eutectic Process ±Classification Temperatures (Tc)

Package Thickness	Volume mm <sup>3</sup>	Volume mm <sup>3</sup>
	<350	≥350
<2.5 mm	235 ℃	220 ℃
• P P	220 ℃	220 ℃

Table 2.Pb-free Process ±Classification Temperatures (Tc)

Package Thickness	Volume mm <sup>3</sup>	Volume mm <sup>3</sup>	Volume mm <sup>3</sup>
	<350	350-2000	≥2000
<1.6 mm	260 ℃	260 ℃	260 ℃
1.6 mm ±2.5 mm	260 ℃	250 ℃	245 ℃
≥2.5 mm	250 ℃	245 ℃	245 ℃

## Reliability Test Program

Test item	Method	Description
SOLDERABILITY	JESD-22, B102	5 Sec, 245℃
HTRB	JESD-22, A108	168/500/1000 Hrs, Bias @ 150℃
BHAST	JESD-22, A108	96 Hrs, 85%RH, 230KPA, Vdc 80% @ 130℃
PCT	JESD-22, A102	96 Hrs, 100%RH, 2atm, 121℃
TCT	JESD-22, A104	250/500/1000 Cycles, -55℃~150℃

## Customer Service

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