

## Ultrafast Diodes, 300 A (INT-A-PAK Power Modules)


**INT-A-PAK**
**FEATURES**

- Electrically insulated by DBC ceramic
- 3500 V<sub>RMS</sub> isolating voltage
- Standard JEDEC® package
- Simplified mechanical designs, rapid assembly
- High surge capability
- Large creepage distances
- UL approved file E78996
- Case style INT-A-PAK
- Designed and qualified for industrial level
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS  
COMPLIANT**
**PRODUCT SUMMARY**

I <sub>F(AV)</sub> at T <sub>C</sub>	300 A at 48 °C
Type	Modules - Diode, High Voltage
Package	INT-A-PAK
Circuit	Two diodes common cathode

**ABSOLUTE MAXIMUM RATINGS**

PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Cathode to anode voltage	V <sub>R</sub>		600	V
Continuous forward current per leg	I <sub>F</sub>	T <sub>C</sub> = 25 °C	435	A
		T <sub>C</sub> = 100 °C	230	
Single pulse forward current	I <sub>FSM</sub>	Limited by junction temperature	TBD	
Maximum power dissipation per leg	P <sub>D</sub>	T <sub>C</sub> = 25 °C	781	W
		T <sub>C</sub> = 100 °C	313	
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>Stg</sub>		-40 to 150	°C
RMS insulation voltage	V <sub>INS</sub>	50 Hz, circuit to base, all terminals shorted, t = 1 s	3500	V

**ELECTRICAL SPECIFICATIONS (T<sub>J</sub> = 25 °C unless otherwise specified)**

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNITS
Cathode to anode breakdown voltage	V <sub>BR</sub>	I <sub>R</sub> = 500 μA	600	-	-	V
Forward voltage drop per leg	V <sub>FM</sub>	I <sub>F</sub> = 150 A	-	1.23	1.53	
		I <sub>F</sub> = 300 A	-	1.43	1.96	
		I <sub>F</sub> = 150 A, T <sub>J</sub> = 125 °C	-	1.11	1.29	
		I <sub>F</sub> = 300 A, T <sub>J</sub> = 125 °C	-	1.39	1.73	
Maximum reverse leakage current	I <sub>RM</sub>	T <sub>J</sub> = 150 °C, V <sub>R</sub> = 600 V	-	-	50	mA



DYNAMIC RECOVERY CHARACTERISTICS (T <sub>J</sub> = 25 °C unless otherwise specified)							
PARAMETER	SYMBOL	TEST CONDITIONS		MIN.	TYP.	MAX.	UNITS
Reverse recovery time	t <sub>rr</sub>	T <sub>J</sub> = 25 °C	I <sub>F</sub> = 50 A dI/dt = 200 A/μs V <sub>R</sub> = 400 V (per leg)	-	130	165	ns
		T <sub>J</sub> = 125 °C		-	195	260	
Peak recovery current	I <sub>rr</sub>	T <sub>J</sub> = 25 °C		-	11	18	A
		T <sub>J</sub> = 125 °C		-	20	30	
Reverse recovery charge	Q <sub>rr</sub>	T <sub>J</sub> = 25 °C		-	670	1485	nC
		T <sub>J</sub> = 125 °C		-	1800	3900	
Peak rate of recovery current	dI <sub>(rec)</sub> /dt	T <sub>J</sub> = 125 °C	-	-	400	A/μs	
Softness factor per leg	s	I <sub>F</sub> = 50 A, T <sub>J</sub> = 25 °C, dI/dt = 400 A/μs, V <sub>R</sub> = 200 V	-	0.2	-		
		I <sub>F</sub> = 50 A, T <sub>J</sub> = 125 °C, dI/dt = 400 A/μs, V <sub>R</sub> = 200 V	-	0.22	-		

THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction operating and storage temperature range	T <sub>J</sub> , T <sub>Stg</sub>		-40 to 150	°C
Maximum thermal resistance, junction to case per leg	R <sub>thJC</sub>	DC operation	0.16	K/W
Typical thermal resistance, case to heatsink	R <sub>thCS</sub>	Mounting surface, flat, smooth and greased	0.05	
Mounting torque ± 10 %	to heatsink busbar	A mounting compound is recommended and the torque should be rechecked after a period of 3 hours to allow the spread of the compound.	4 to 6	Nm
Approximate weight			200	g
			7.1	oz.
Case style			INT-A-PAK	

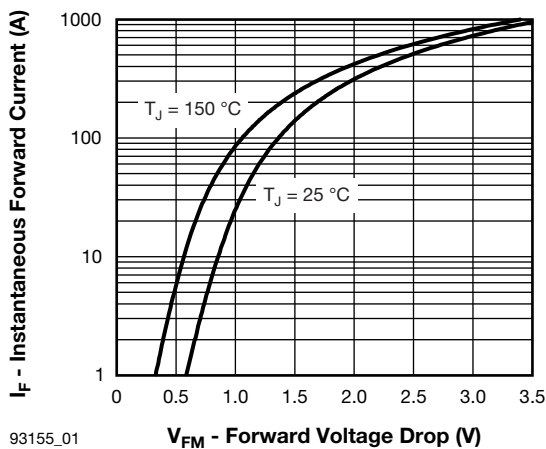


Fig. 1 - Maximum Forward Voltage Drop Characteristics

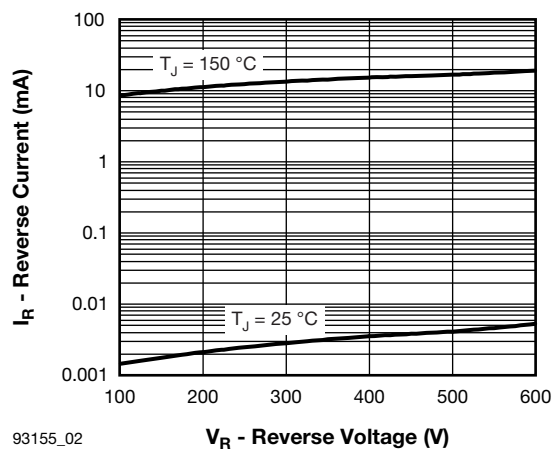


Fig. 2 - Typical Values of Reverse Current vs. Reverse Voltage

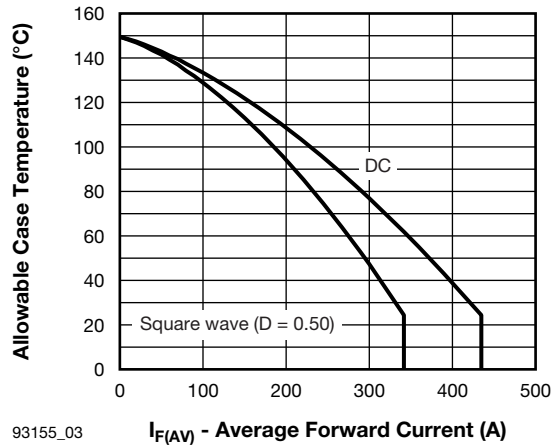


Fig. 3 - Maximum Allowable Case Temperature vs. Average Forward Current

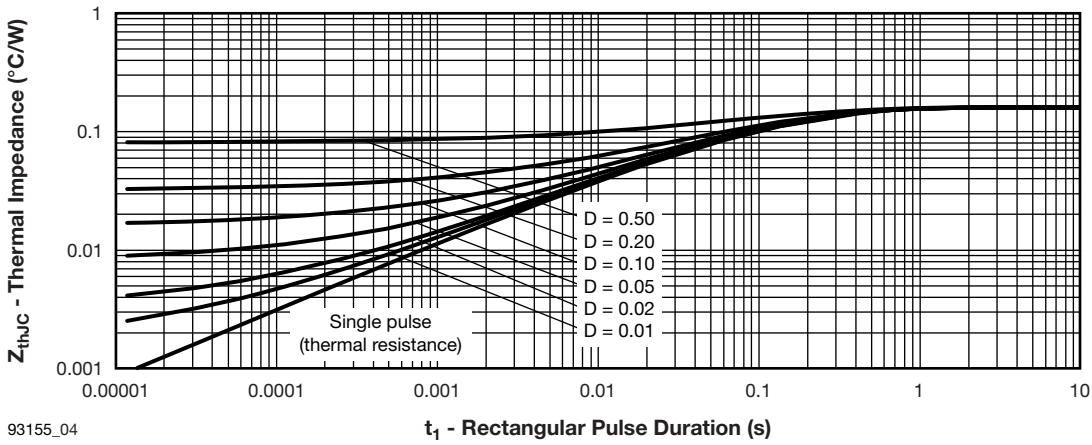


Fig. 4 - Maximum Thermal Impedance  $Z_{thJC}$  Characteristics

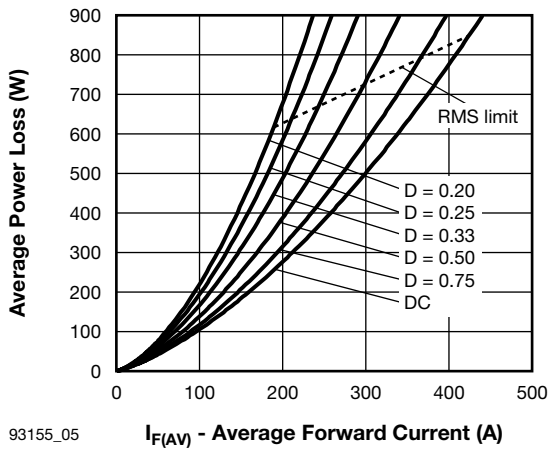


Fig. 5 - Forward Power Loss Characteristics

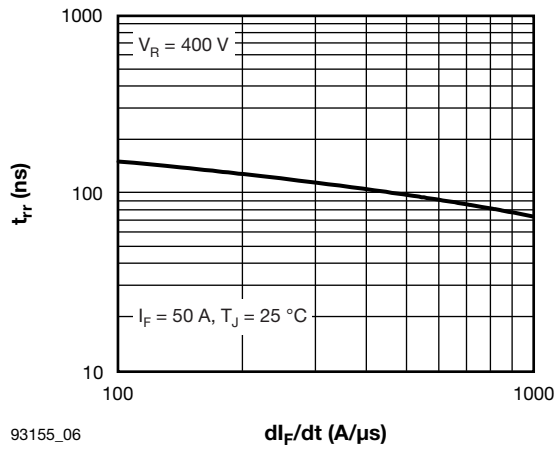
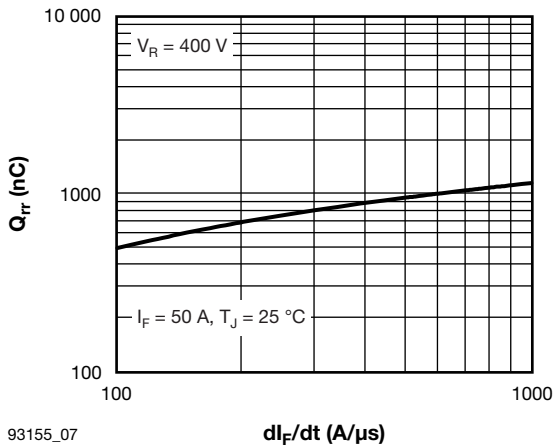
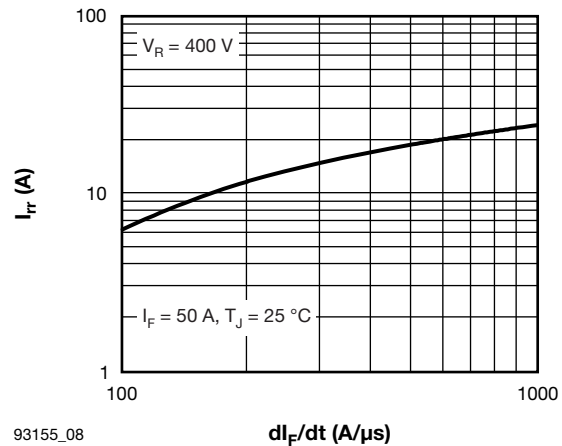


Fig. 6 - Typical Reverse Recovery Time vs.  $di_F/dt$  (Per Leg)



93155\_07

Fig. 7 - Typical Reverse Recovery Charge vs.  $dI_F/dt$  (Per Leg)



93155\_08

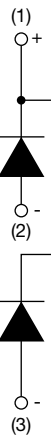
Fig. 8 - Typical Reverse Recovery Current vs.  $dI_F/dt$  (Per Leg)

## ORDERING INFORMATION TABLE

Device code	<b>VS-VS</b>	<b>KC</b>	<b>U</b>	<b>300</b>	<b>06</b>	<b>PbF</b>
	①	②	③	④	⑤	⑥

- 1** - Vishay Semiconductors product
- 2** - Circuit configuration:  
C = 2 diodes common cathode
- 3** - U = Ultrafast diode
- 4** - Current rating (300 = 300 A)
- 5** - Voltage rating (06 = 600 V)
- 6** - PbF = Lead (Pb)-free

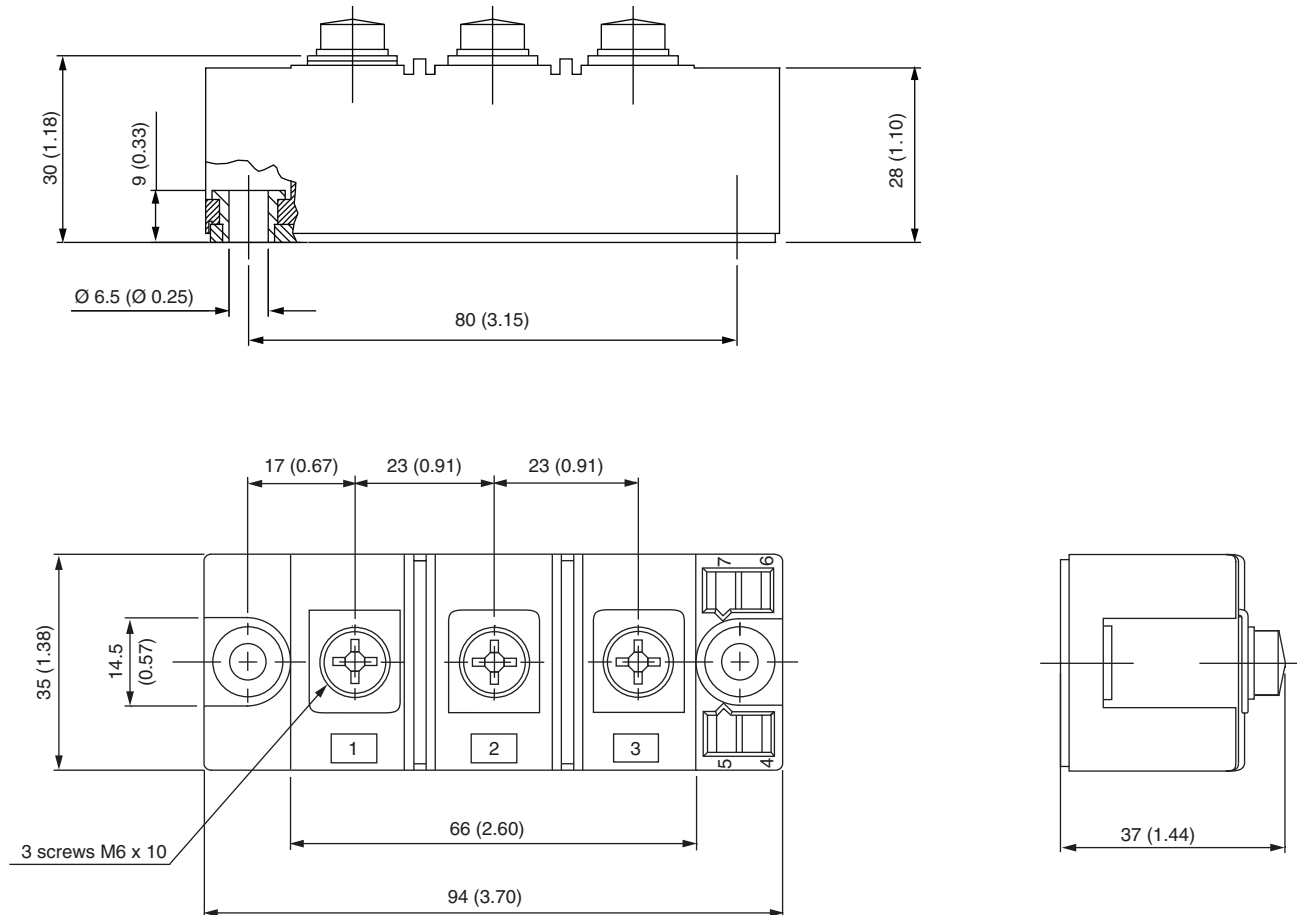
## CIRCUIT CONFIGURATION



LINKS TO RELATED DOCUMENTS	
Dimensions	<a href="http://www.vishay.com/doc?95254">www.vishay.com/doc?95254</a>

## INT-A-PAK DBC

**DIMENSIONS** in millimeters (inches)





## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

## Material Category Policy

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**

## Данный компонент на территории Российской Федерации

### Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9