

Fast Recovery Diodes (Hockey PUK Version), 375 A



DO-200AB (B-PUK)


**RoHS
COMPLIANT**
FEATURES

- High power FAST recovery diode series
- 4.5 μ s recovery time
- High voltage ratings up to 4500 V
- High current capability
- Optimized turn-on and turn-off characteristics
- Low forward recovery
- Fast and soft reverse recovery
- Press PUK encapsulation
- Case style conform to JEDEC® DO-200AB (B-PUK)
- Maximum junction temperature 125 °C
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

- Snubber diode for GTO
- High voltage freewheeling diode
- Fast recovery rectifier applications

PRODUCT SUMMARY

$I_{F(AV)}$	375 A
Package	B-PUK (DO-200AB)
Circuit configuration	Single Diode

MAJOR RATINGS AND CHARACTERISTICS

PARAMETER	TEST CONDITIONS	VALUES	UNITS
$I_{F(AV)}$		375	A
	T_{hs}	55	°C
$I_{F(RMS)}$		408	A
I_{FSM}	50 Hz	5500	
	60 Hz	5760	
V_{RRM}	Range	3000 to 4500	V
t_{rr}		4.5	μ s
	T_J	125	°C
T_J		-40 to 125	

ELECTRICAL SPECIFICATIONS
VOLTAGE RATINGS

TYPE NUMBER	VOLTAGE CODE	V_{RRM} , MAXIMUM REPETITIVE PEAK REVERSE VOLTAGE V	V_{RSM} , MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V	I_{RRM} MAXIMUM AT $T_J = T_J$ MAXIMUM mA
VS-SD263C..S50L	30	3000	3100	50
	36	3600	3700	
	40	4000	4100	
	45	4500	4600	



FORWARD CONDUCTION					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average forward current at heatsink temperature	$I_{F(AV)}$	180° conduction, half sine wave		375 (150)	A
		Double side (single side) cooled		55 (85)	°C
Maximum RMS forward current	$I_{F(RMS)}$	25 °C heatsink temperature double side cooled		725	
Maximum peak, one-cycle forward, non-repetitive surge current	I_{FSM}	t = 10 ms	No voltage reapplied	5500	A
		t = 8.3 ms		5760	
		t = 10 ms	50 % V_{RRM} reapplied	4630	
		t = 8.3 ms		4850	
Maximum I^2t for fusing	I^2t	t = 10 ms	No voltage reapplied	151	kA ² s
		t = 8.3 ms		138	
		t = 10 ms	50 % V_{RRM} reapplied	107	
		t = 8.3 ms		98	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied		1510	kA ² √s
Low level value of threshold voltage	$V_{F(TO)1}$	(16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$, $T_J = T_J$ maximum)		1.56	V
High level value of threshold voltage	$V_{F(TO)2}$	(I > $\pi \times I_{F(AV)}$, $T_J = T_J$ maximum)		1.71	
Low level value of forward slope resistance	r_{f1}	(16.7 % $\times \pi \times I_{F(AV)} < I < \pi \times I_{F(AV)}$, $T_J = T_J$ maximum)		1.64	mW
High level value of forward slope resistance	r_{f2}	(I > $\pi \times I_{F(AV)}$, $T_J = T_J$ maximum)		1.53	
Maximum forward voltage drop	V_{FM}	$I_{pk} = 1000$ A, $T_J = T_J$ maximum, $t_p = 10$ ms sinusoidal wave		3.20	V

RECOVERY CHARACTERISTICS								
CODE	MAXIMUM VALUE AT $T_J = 25$ °C	TEST CONDITIONS			TYPICAL VALUES AT $T_J = 150$ °C			
	t_{rr} AT 25 % I_{RRM} (μs)	I_{pk} SQUARE PULSE (A)	dI/dt (1) (A/μs)	V_r (V)	t_{rr} AT 25 % I_{RRM} (μs)	Q_{rr} (μC)	I_{rr} (A)	
S50	5.0	1000	100	- 50	4.5	680	240	

Note

(1) $dI/dt = 25$ A/μs, $T_J = 25$ °C

THERMAL AND MECHANICAL SPECIFICATIONS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Maximum junction operating temperature range	T_J		- 40 to 125	°C
Maximum storage temperature range	T_{Stg}		- 40 to 150	
Maximum thermal resistance, junction to heatsink	R_{thJ-hs}	DC operation single side cooled	0.11	K/W
		DC operation double side cooled	0.05	
Mounting force, ± 10 %			9800 (1000)	N (kg)
Approximate weight			230	g
Case style		See dimensions - link at the end of datasheet	DO-200AB (B-PUK)	

ΔR_{thJ-hs} CONDUCTION						
CONDUCTION ANGLE	SINUSOIDAL CONDUCTION		RECTANGULAR CONDUCTION		TEST CONDITIONS	UNITS
	SINGLE SIDE	DOUBLE SIDE	SINGLE SIDE	DOUBLE SIDE		
180°	0.012	0.011	0.008	0.008	$T_J = T_J$ maximum	K/W
120°	0.014	0.015	0.014	0.014		
90°	0.018	0.018	0.019	0.019		
60°	0.026	0.027	0.027	0.028		
30°	0.045	0.046	0.046	0.046		

Note

• The table above shows the increment of thermal resistance R_{thJ-hs} when devices operate at different conduction angles than DC

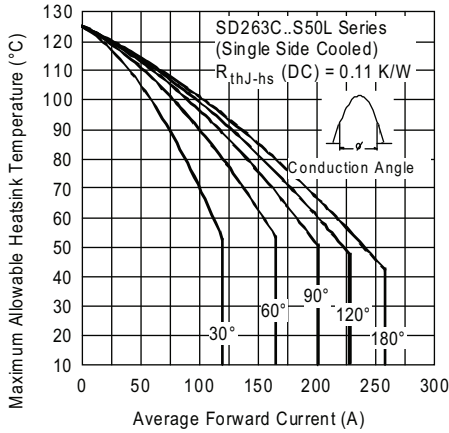


Fig. 1 - Current Ratings Characteristics

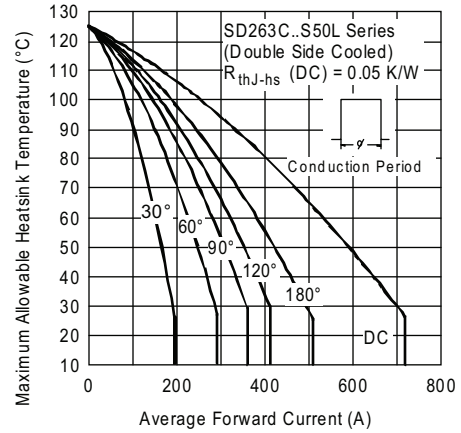


Fig. 4 - Current Ratings Characteristics

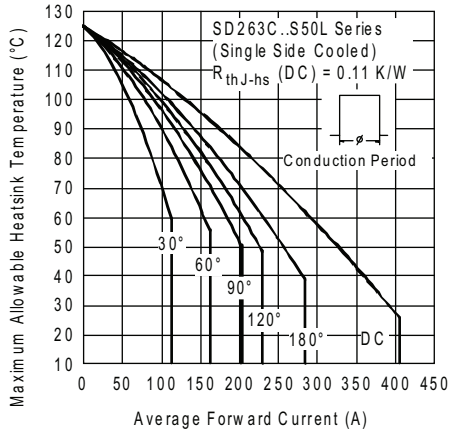


Fig. 2 - Current Ratings Characteristics

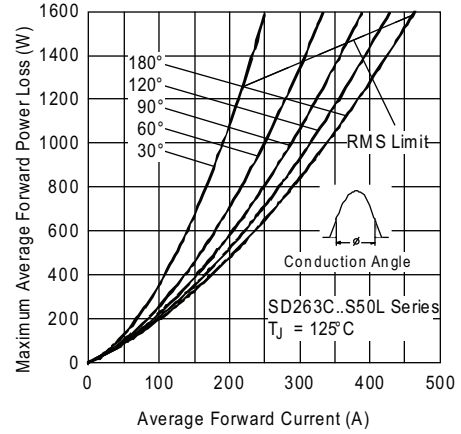


Fig. 5 - Forward Power Loss Characteristics

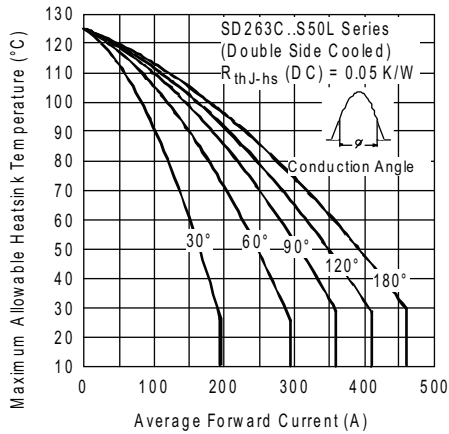


Fig. 3 - Current Ratings Characteristics

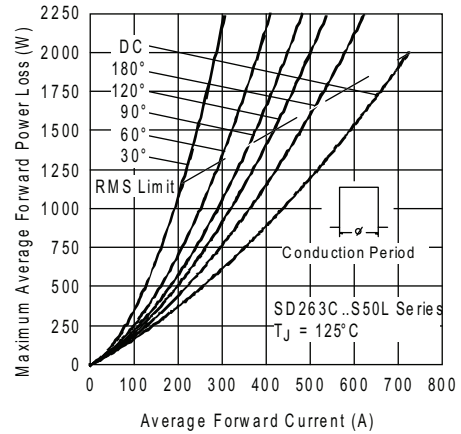


Fig. 6 - Forward Power Loss Characteristics

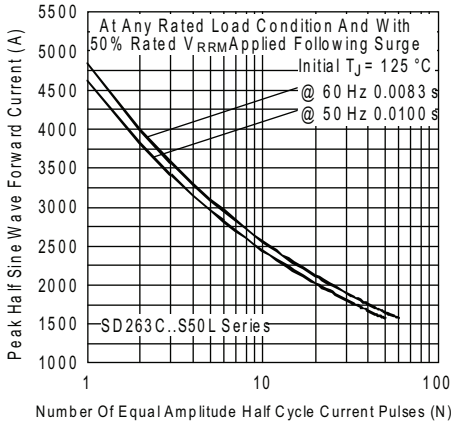


Fig. 7 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

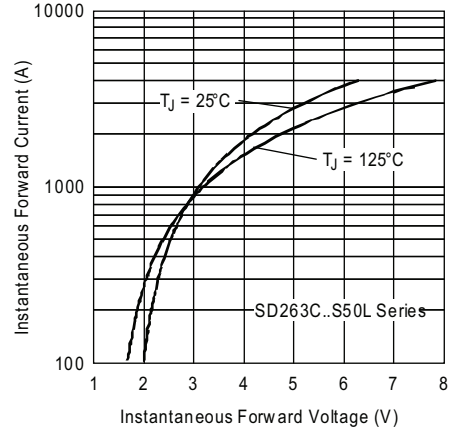


Fig. 9 - Forward Voltage Drop Characteristics

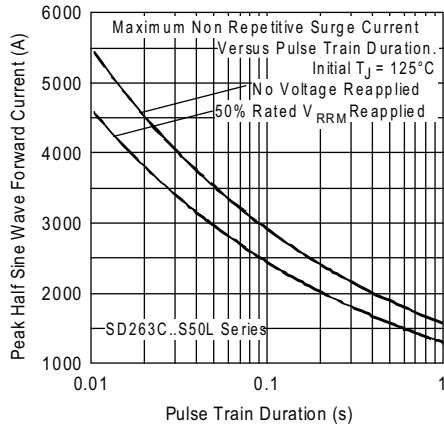


Fig. 8 - Maximum Non-Repetitive Surge Current Single and Double Side Cooled

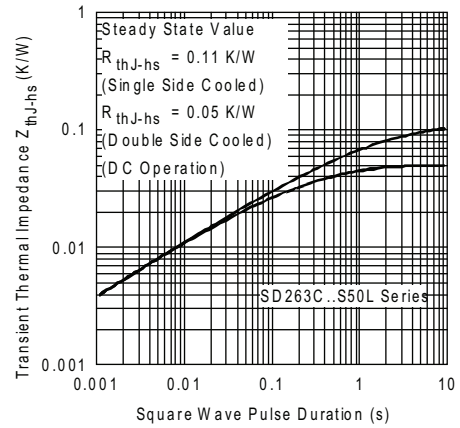


Fig. 10 - Thermal Impedance Z_{thJ-hs} Characteristic

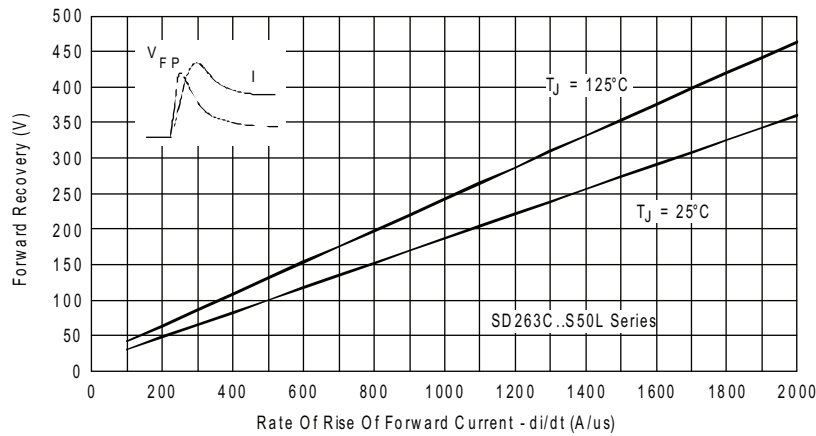


Fig. 11 - Typical Forward Recovery Characteristics

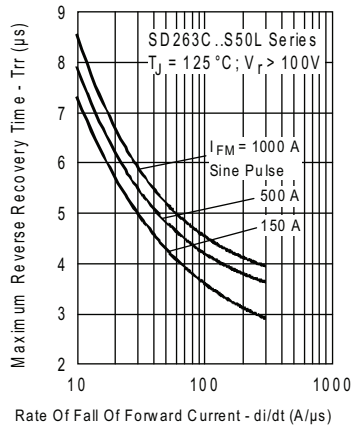


Fig. 12 - Recovery Time Characteristics

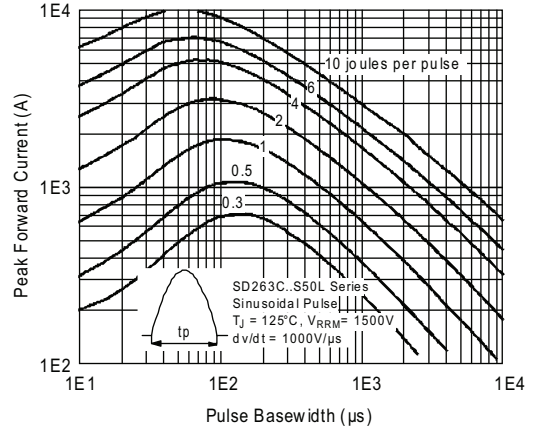


Fig. 15 - Maximum Total Energy Loss Per Pulse Characteristics

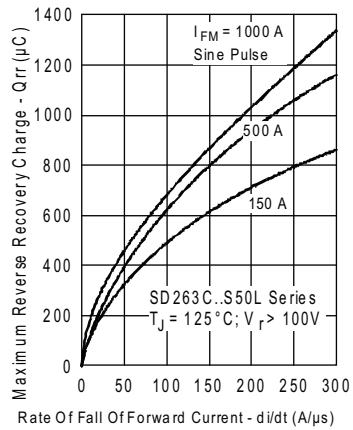


Fig. 13 - Recovery Charge Characteristics

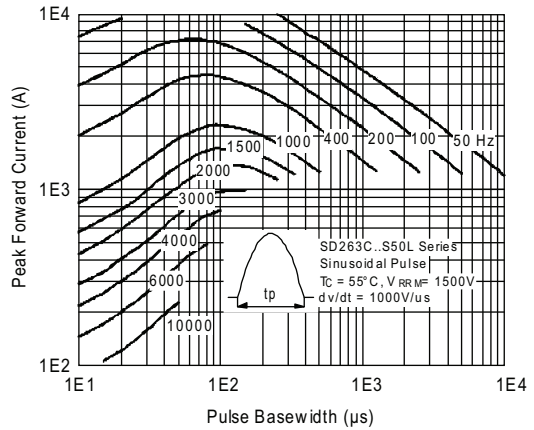


Fig. 16 - Frequency Characteristics

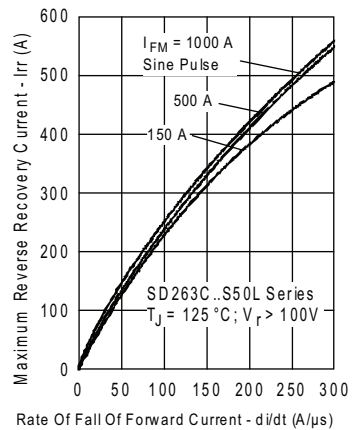


Fig. 14 - Recovery Current Characteristics

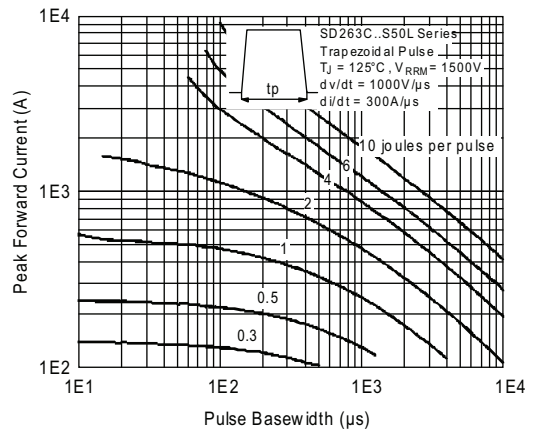


Fig. 17 - Maximum Total Energy Loss Per Pulse Characteristics

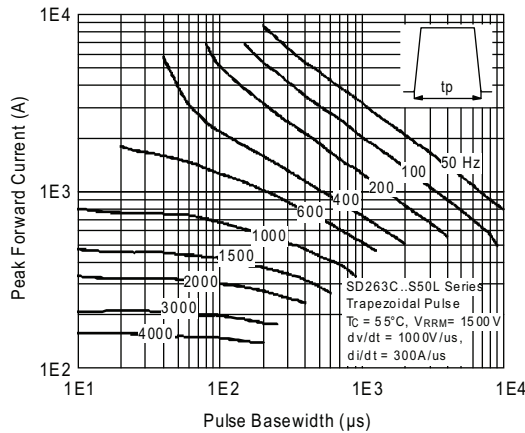


Fig. 18 - Frequency Characteristics

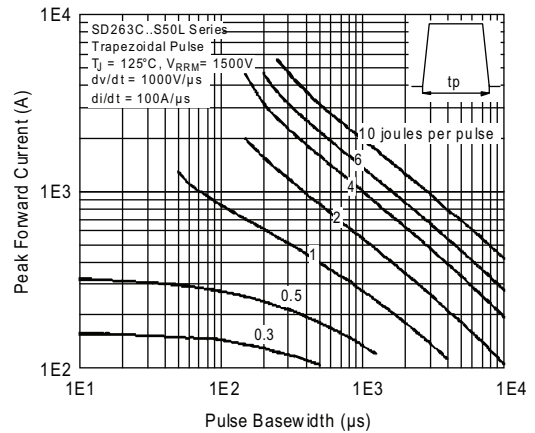


Fig. 19 - Maximum Total Energy Loss Per Pulse Characteristics

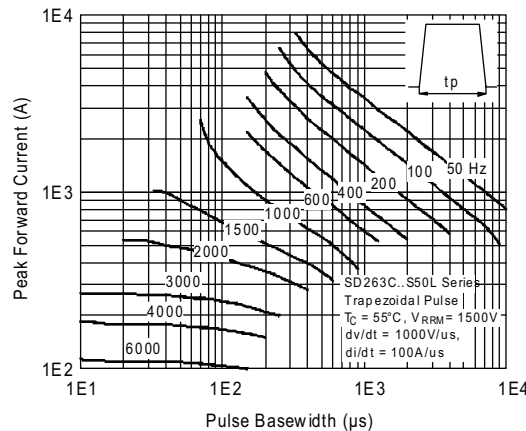


Fig. 20 - Frequency Characteristics

ORDERING INFORMATION TABLE

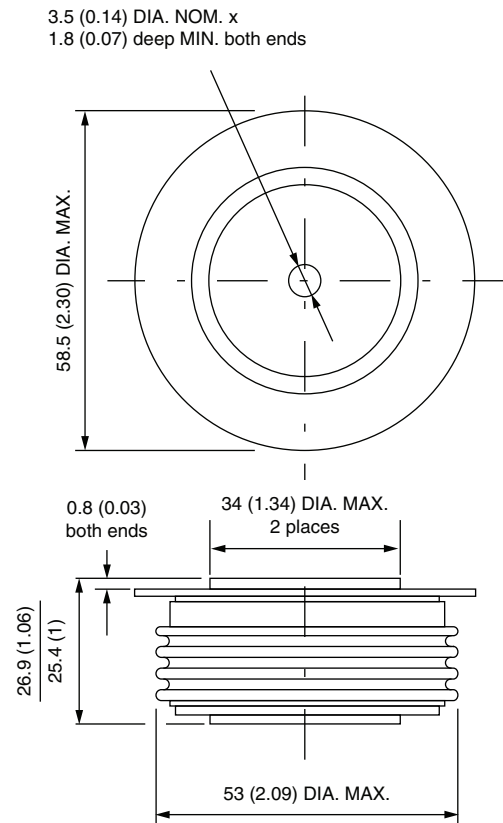
Device code	VS-	SD	26	3	C	45	S50	L
	①	②	③	④	⑤	⑥	⑦	⑧

- 1** - Vishay Semiconductors product
- 2** - Diode
- 3** - Essential part number
- 4** - 3 = Fast recovery
- 5** - C = Ceramic PUK
- 6** - Voltage code x 100 = V_{RRM} (see Voltage Ratings table)
- 7** - t_{rr} code
- 8** - L = PUK case DO-200AB (B-PUK)

LINKS TO RELATED DOCUMENTS	
Dimensions	www.vishay.com/doc?95246

DO-200AB (B-PUK)

DIMENSIONS in millimeters (inches)



Quote between upper and lower pole pieces has to be considered after application of mounting force (see Thermal and Mechanical Specifications)



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.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.