

Surface-Mount TMBS® (Trench MOS Barrier Schottky) Rectifier


DFN1006-2A

Anode  Cathode

LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	0.2 A
V_{RRM}	100 V
I_{FSM}	4 A
V_F at $I_F = 0.2$ A ($T_J = 125$ °C)	0.6 V
T_J max.	150 °C
Package	DFN1006-2A
Circuit configuration	Single

FEATURES

- Low profile package - typical height of 0.45 mm
- Leadless DFN package with side-wettable flanks suitable for customer AOI (Automatic Optical Inspection)
- Very low forward voltage drop by TMBS Gen3 technology
- Also function as a small signal Schottky diode
- Low power losses, high efficiency
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

TYPICAL APPLICATIONS

For use in low voltage, high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

MECHANICAL DATA

Case: DFN1006-2A

Molding compound meets UL 94 V-0 flammability rating

Base P/N-G3 - green, RoHS-compliant, and commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

Meet JESD 201 class 2 whisker test

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	V02N1103	UNIT
Device marking code		TA	
Maximum repetitive peak reverse voltage	V_{RRM}	100	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	0.2	A
Peak forward surge current 8.3 ms single half sine-wave	I_{FSM}	4	A
Operating junction temperature range	T_J (1)	-40 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Note

(1) The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$



ELECTRICAL CHARACTERISTICS (T _J = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 0.1 A	T _J = 25 °C	V _F ⁽¹⁾	0.61	-	V
	I _F = 0.2 A			0.71	0.78	
	I _F = 0.1 A	T _J = 125 °C		0.53	-	
	I _F = 0.2 A			0.6	0.65	
Reverse current	V _R = 70 V	T _J = 25 °C	I _R ⁽²⁾	0.01	-	μA
		T _J = 125 °C		6	-	
	V _R = 100 V	T _J = 25 °C		-	2.0	
		T _J = 125 °C		20	100	
Typical junction capacitance	4.0 V, 1 MHz		C _J	20	-	pF

Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: pulse width $\leq 5\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)			
PARAMETER	SYMBOL	TYP.	UNIT
Thermal resistance	$R_{\theta JA}^{(1)(2)}$	410	$^{\circ}\text{C/W}$
	$R_{\theta JA}^{(1)(3)}$	270	
	$R_{\theta JM}^{(3)}$	46	

Notes(1) The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$ (2) Thermal resistance junction-to-ambient to follow JEDEC[®] 51-2A, device mounted on FR4 PCB, 2 oz., standard footprint(3) Thermal resistance junction-to-ambient to follow JEDEC[®] 51-2A, device mounted on FR4 PCB, 2 oz., 0.6 mm x 0.7 mm footprint(4) Mounted on infinite heat sink; thermal resistance $R_{\theta JM}$ - junction-to-mount**ORDERING INFORMATION TABLE**

Device code	V	02	N1	10	3	-	G3
	①	②	③	④	⑤	⑥	⑦
①	Vishay TMBS product						
②	Current rating (0.2 = 0.2 A)						
③	Package type (N1 = DFN1006-2A)						
④	Voltage rating (10 = 100 V)						
⑤	TMBS generation option (3 = Gen3)						
⑥	Quality grade (industry grade)						
⑦	Material / environmental category (G3 = green, RoHS-compliant, and termination lead (Pb)-free)						

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (mg)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
V02N1103-G3/H	0.85	H	10 000	7" diameter plastic tape and reel

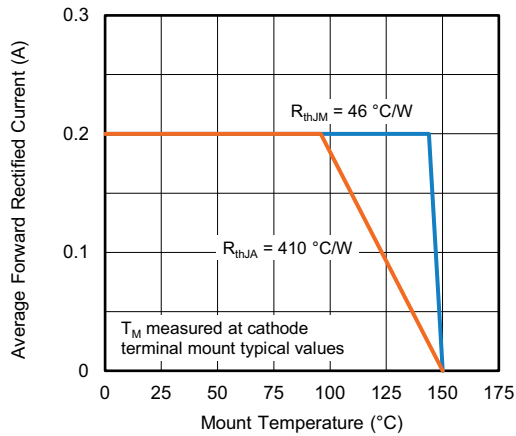
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

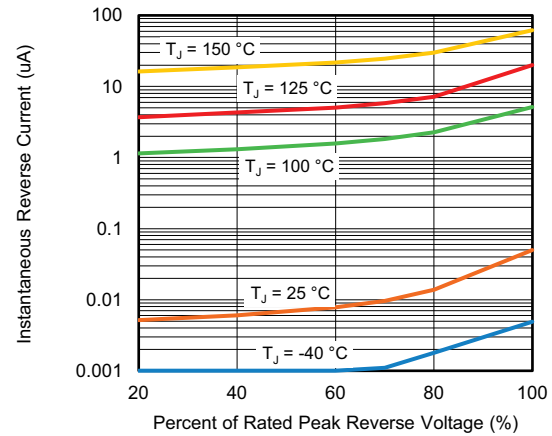


Fig. 4 - Typical Reverse Characteristics

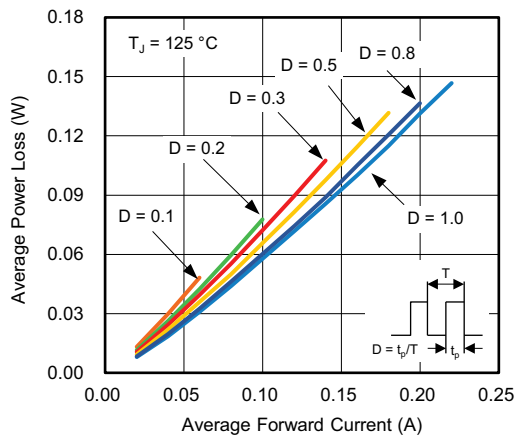


Fig. 2 - Forward Power Loss Characteristics

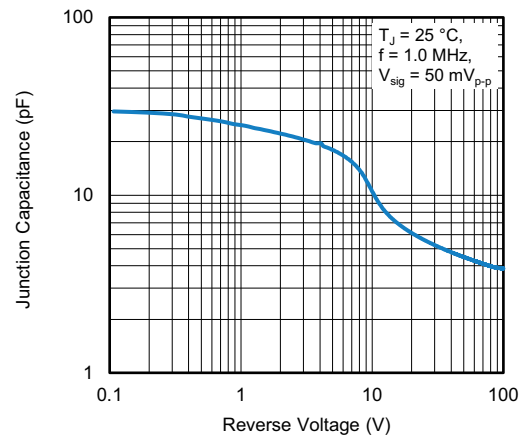


Fig. 5 - Typical Junction Capacitance

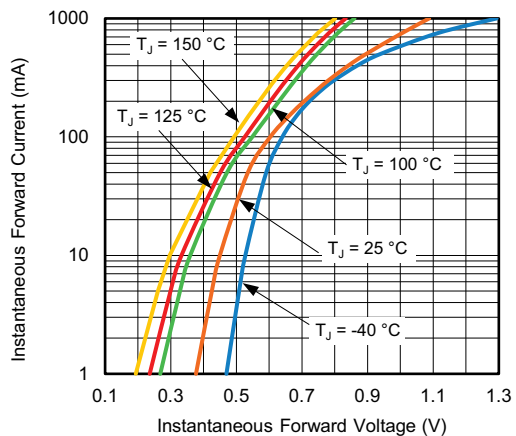


Fig. 3 - Typical Instantaneous Forward Characteristics

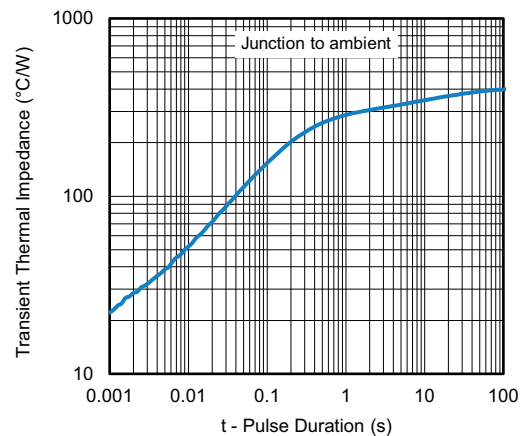
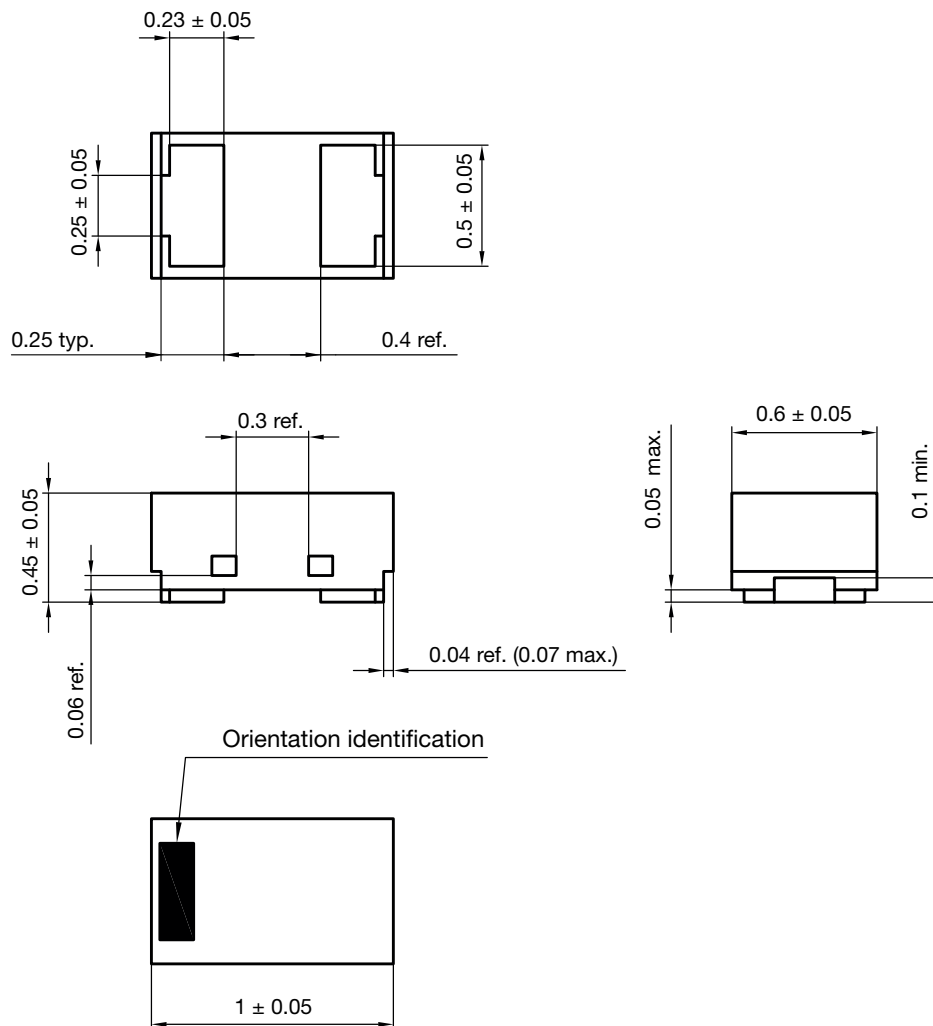
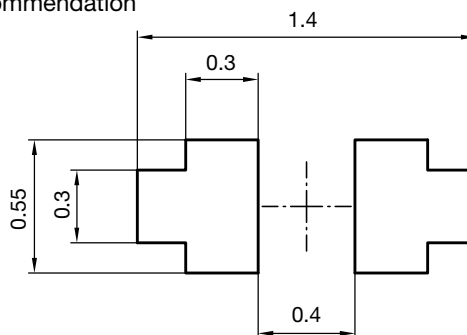
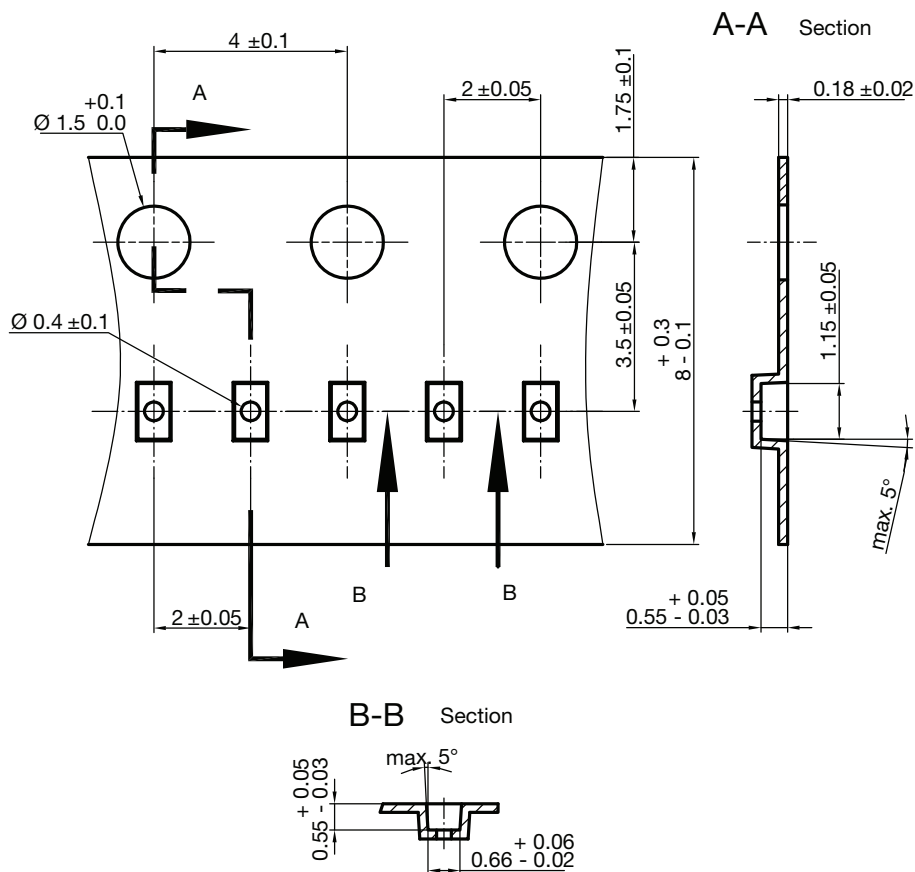


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in millimeters: **DFN1006-2A**

Footprint recommendation


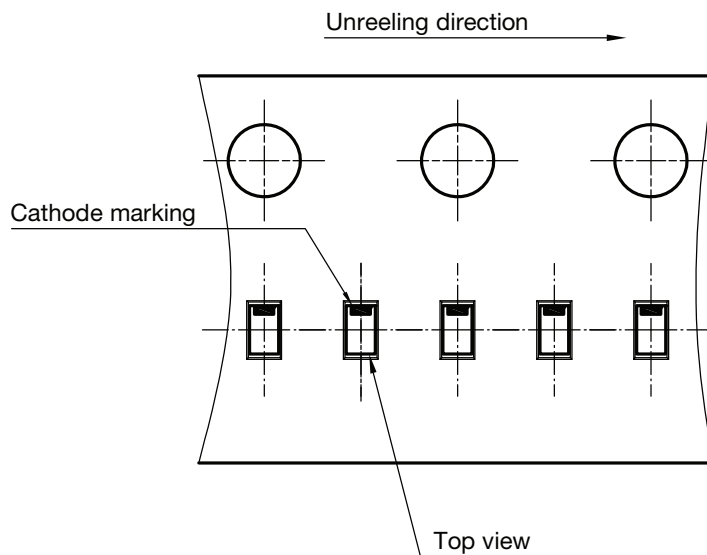
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23191

CARRIER TAPE DFN1006-2A


S8-V-3906.04-063 (4)
created 28.10.2019

surface resistance: $10^5 - 10^{11} \frac{\text{OHMS}}{\text{SQ}}$
Cumulative tolerances of 10 sprocket holes is $\pm 0.2 \text{ mm}$

ORIENTATION IN CARRIER TAPE DFN1006-2A


S8-V-3906.04-064 (4)
created 28.10.2019



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