Product Change Notification

Product Group: OPT/Fri Dec 17, 2021/PCN-OPT-1191-2021-REV-0

TSMF1000, TSMF1020, TSMF1030 - Change in Chip

DESCRIPTION OF CHANGE: A new chip generation will be introduced in TSMF1000, TSMF1020, TSMF1030 dome lens products.

With the new chip, the devices will have more than 5 times increased radiant intensity and narrow emission angle. The high performance chip allows customers to achieve the required intensity with lower driving current.

REASON FOR CHANGE: Introduction of new chip generation with improved electro-optical performance.

EXPECTED INFLUENCE ON QUALITY/RELIABILTY/PERFORMANCE: No influence on quality and reliability expected. Nevertheless, we recommend to test the product in customers application.

PART NUMBERS/SERIES/FAMILIES AFFECTED: TSMF1000, TSMF1000-GS15, TSMF1020, TSMF1020-GS15, TSMF1030

VISHAY BRAND(s): Vishay Semiconductors

TIME SCHEDULE:

Start Shipment Date: Sun May 1, 2022

SAMPLE AVAILABILITY: 31. Jan.2022

PRODUCT IDENTIFICATION: Date code

QUALIFICATION DATA: Available upon request

This PCN is considered approved, without further notification, unless we receive specific customer concerns before Fri Apr 15, 2022 or as specified by contract.

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For further information, please contact your regional Vishay office.

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TSMF1000, TSMF1020, TSMF1030 - Change in Chip

Change overview

PCN: OPT-1191-2021 Rev. 0

Change Overview

Before PCN

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I_F = 20 mA	V_F		1.3	1.5	V
	I_F = 1 A, t_p = 100 µs	V_F		2.4		V
Temperature coefficient of V_F	I_F = 1 mA	TK_{VF}		- 1.8		mV/K
Reverse current	V_R = 5 V	I_R			10	µA
Junction capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_j		160		pF
Radiant intensity	I_F = 20 mA	I_e	2.5	5	13	mW/sr
	I_F = 100 mA, t_p = 100 µs	I_e		25		mW/sr
Radiant power	I_F = 100 mA, t_p = 20 ms	ϕ_e		35		mW
Temperature coefficient of ϕ_e	I_F = 20 mA	$TK\phi_e$		- 0.6		%/K
Angle of half intensity		φ		± 17		deg
Peak wavelength	I_F = 20 mA	λ_p		890		nm
Spectral bandwidth	I_F = 20 mA	$\Delta\lambda$		40		nm
Temperature coefficient of λ_p	I_F = 20 mA	$TK\lambda_p$		0.2		nm/K
Rise time	I_F = 20 mA	t_r		30		ns
Fall time	I_F = 20 mA	t_f		30		ns
Cut-off frequency	I_{DC} = 70 mA, I_{AC} = 30 mA pp	f_c		12		MHz
Virtual source diameter		d		1.2		mm

After PCN

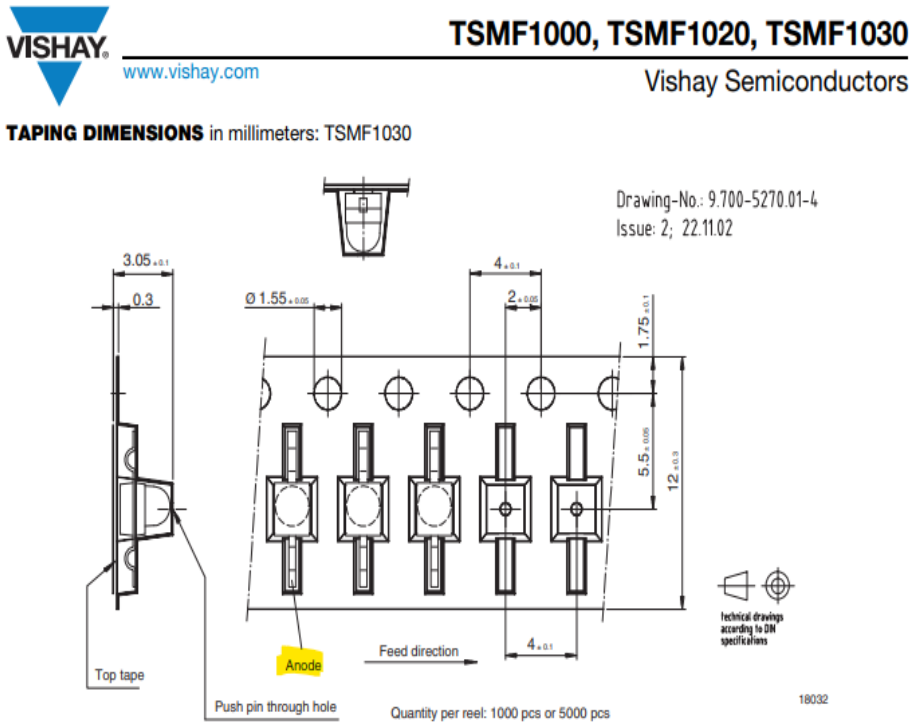
BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I_F = 20 mA	V_F	-	1.3	1.5	V
	I_F = 100 mA, t_p = 100 µs	V_F	-	1.5	-	V
	I_F = 1 A, t_p = 100 µs	V_F	-	2.6	-	V
Temperature coefficient of V_F	I_F = 20 mA	TK_{VF}	-	-1.4	-	mV/K
Reverse current		I_R	Not designed for reverse operation			µA
Junction capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_j	-	56	-	pF
Radiant intensity	I_F = 20 mA	I_e	15	27	40	mW/sr
	I_F = 100 mA, t_p = 100 µs	I_e	-	155	-	mW/sr
Radiant power	I_F = 20 mA, t_p = 20 ms	ϕ_e	-	10	-	mW
Temperature coefficient of ϕ_e	I_F = 20 mA	$TK\phi_e$	-	-0.3	-	%/K
Angle of half intensity		φ	-	± 11	-	°
Peak wavelength	I_F = 20 mA	λ_p	-	890	-	nm
Spectral bandwidth	I_F = 20 mA	$\Delta\lambda$	-	35	-	nm
Temperature coefficient of λ_p	I_F = 20 mA	$TK\lambda_p$	-	0.3	-	nm/K
Rise time	I_F = 20 mA	t_r	-	15	-	ns
Fall time	I_F = 20 mA	t_f	-	15	-	ns

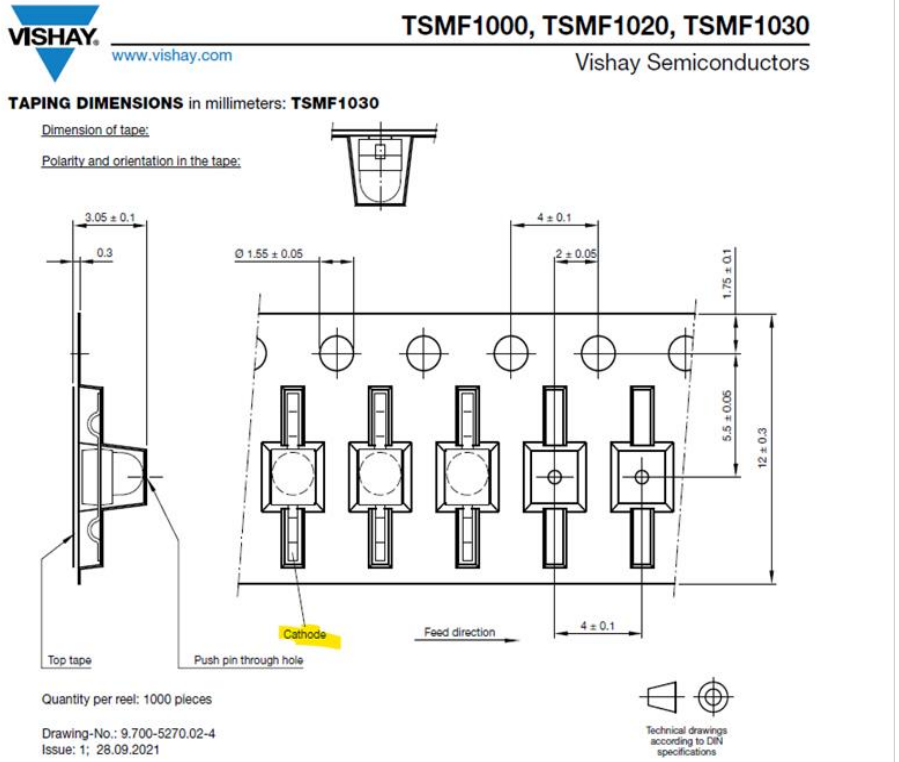
Main changes:

- **Higher radiant intensity (Typical : 5mw/sr to 27mw/sr)**
- **Emission angle/angle of half intensity has been reduced from +-17° to +-11°**

Before PCN



After PCN



- **Changed device orientation**

Thank you