ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**VALUE**	**UNIT**
Reverse voltage		V_R	5	V
Forward current		I_F	100	mA
Peak forward current	t_p/T = 0.5, t_p = 100 µs	I_{FM}	200	mA
Surge forward current	t_p = 100 µs	I_{FSM}	1.0	A
Power dissipation		P_V	190	mW
Junction temperature		T_j	100	°C
Operating temperature range		T_{amb}	-40 to +85	°C
Storage temperature range		T_{stg}	-40 to +100	°C
Soldering temperature	t ≤ 5 s	T_{sd}	< 260	°C
Thermal resistance junction/ambient	Soldered on PCB, pad dimensions: 4 mm x 4 mm	R_{thJA}	400	°C

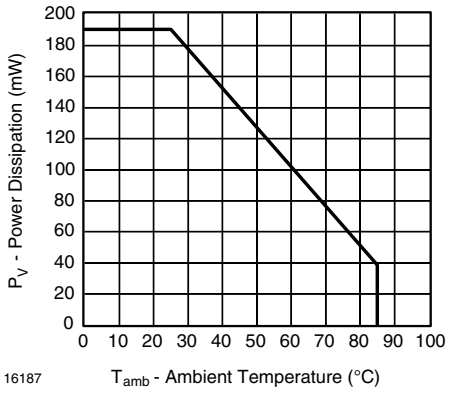


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

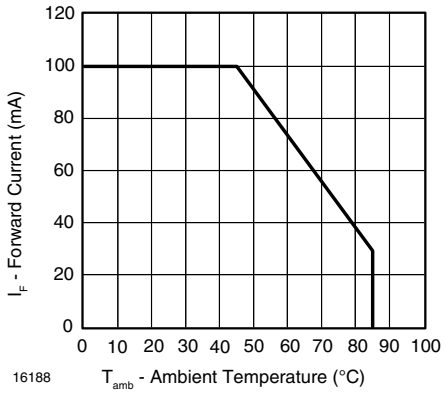


Fig. 2 - Forward Current vs. Ambient Temperature

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Forward voltage	I_F = 20 mA, t_p = 20 ms	V_F		1.2	1.5	V
	I_F = 1 A, t_p = 100 µs	V_F		2.2		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		40		pF
Radiant intensity	I_F = 20 mA, t_p = 20 ms	I_e	3	11	15	mW/sr
Radiant power	I_F = 100 mA, t_p = 20 ms	ϕ_e		40		mW
Temperature coefficient of ϕ_e	I_F = 20 mA	$TK\phi_e$		-0.6		%/K
Angle of half intensity		φ		± 12		deg
Peak wavelength	I_F = 100 mA	λ_p		940		nm
Spectral bandwidth	I_F = 100 mA	$\Delta\lambda$		30		nm
Temperature coefficient of λ_p	I_F = 100 mA	$TK\lambda_p$		0.2		nm/K
Rise time	I_F = 100 mA	t_r		15		ns
Fall time	I_F = 100 mA	t_f		15		ns

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

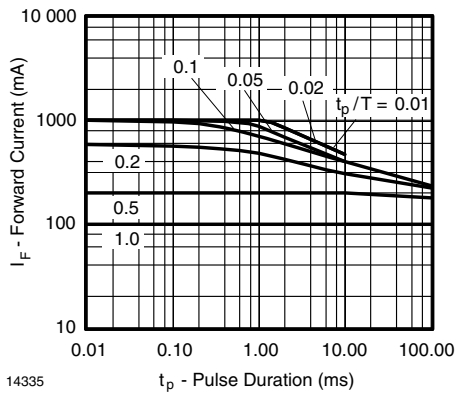


Fig. 3 - Pulse Forward Current vs. Pulse Duration

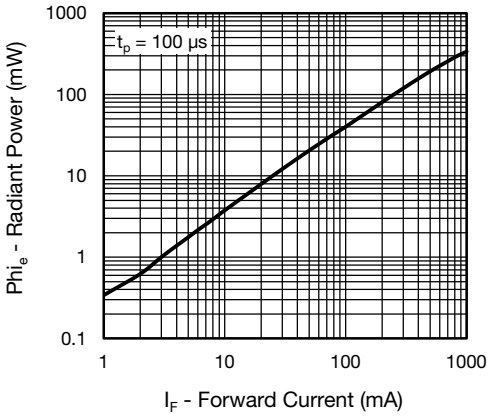


Fig. 6 - Radiant Power vs. Forward Current

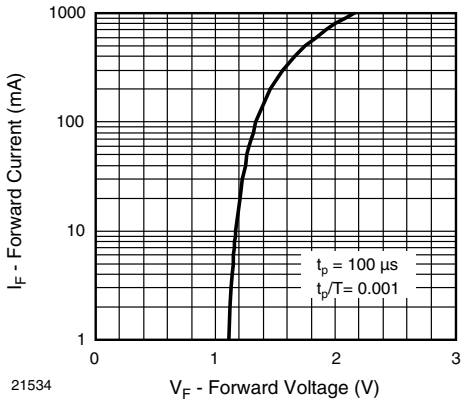


Fig. 4 - Forward Current vs. Forward Voltage

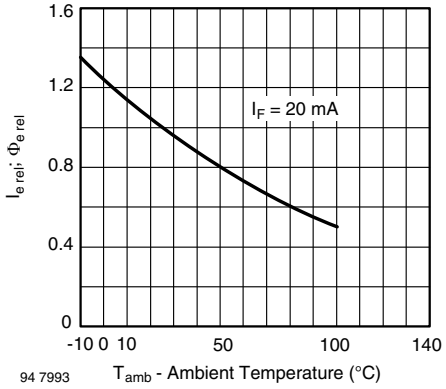


Fig. 7 - Relative Radiant Intensity/Power vs. Ambient Temperature

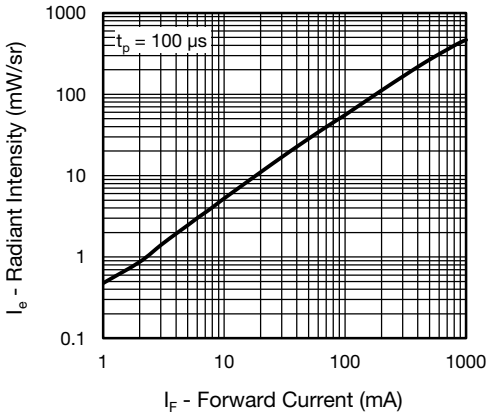


Fig. 5 - Radiant Intensity vs. Forward Current

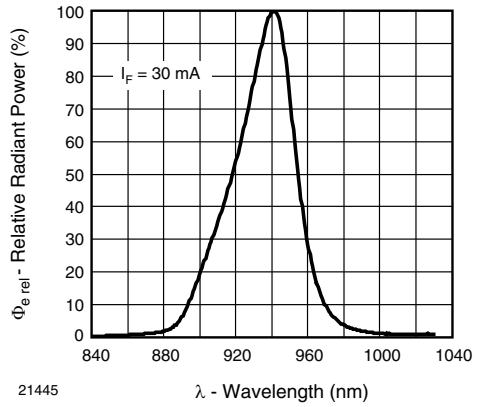


Fig. 8 - Relative Radiant Power vs. Wavelength

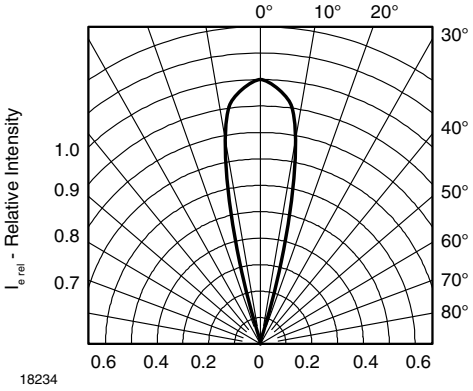


Fig. 9 - Relative Radiant Intensity vs. Angular Displacement

PRECAUTIONS FOR USE

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (burn out will happen).

2. Storage

- Storage temperature and rel. humidity conditions are: 5 °C to 35 °C, R.H. 60 %.
- Floor life must not exceed 168 h, acc. to JEDEC level 3, J-STD-020.
  Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp proof box with desiccant.
  Considering tape life, we suggest to use products within one year from production date.
- If opened more than one week in an atmosphere 5 °C to 35 °C, R.H. 60 %, devices should be treated at 60 °C ± 5 °C for 15 h.
- If humidity indicator in the package shows pink color (normal blue), then devices should be treated with the same conditions as 2.3.

REFLOW SOLDER PROFILE

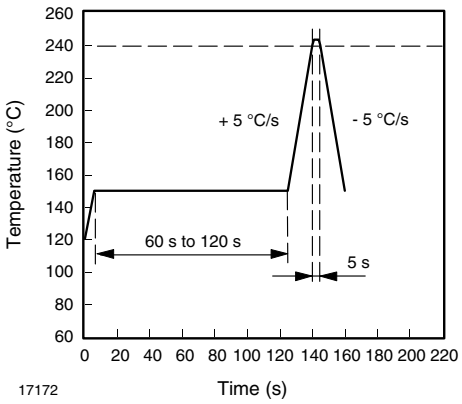


Fig. 10 - Lead Tin (SnPb) Reflow Solder Profile

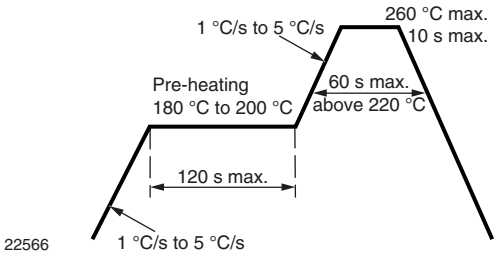
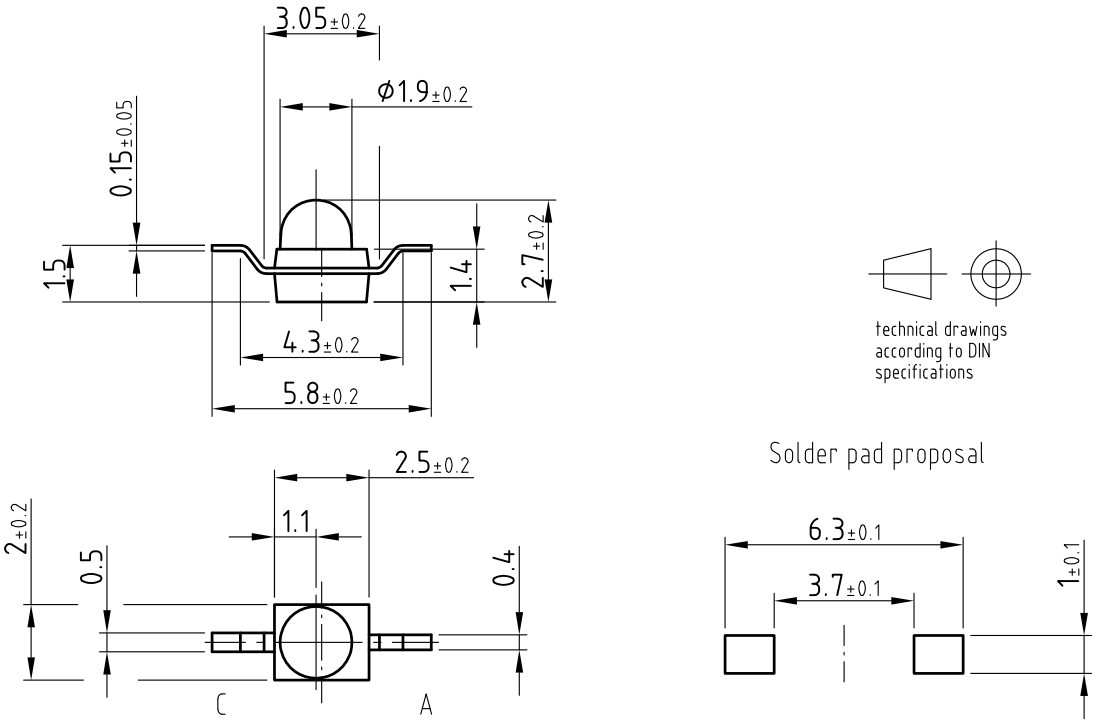


Fig. 11 - Lead (Pb)-Free Reflow Solder Profile acc. J-STD-020

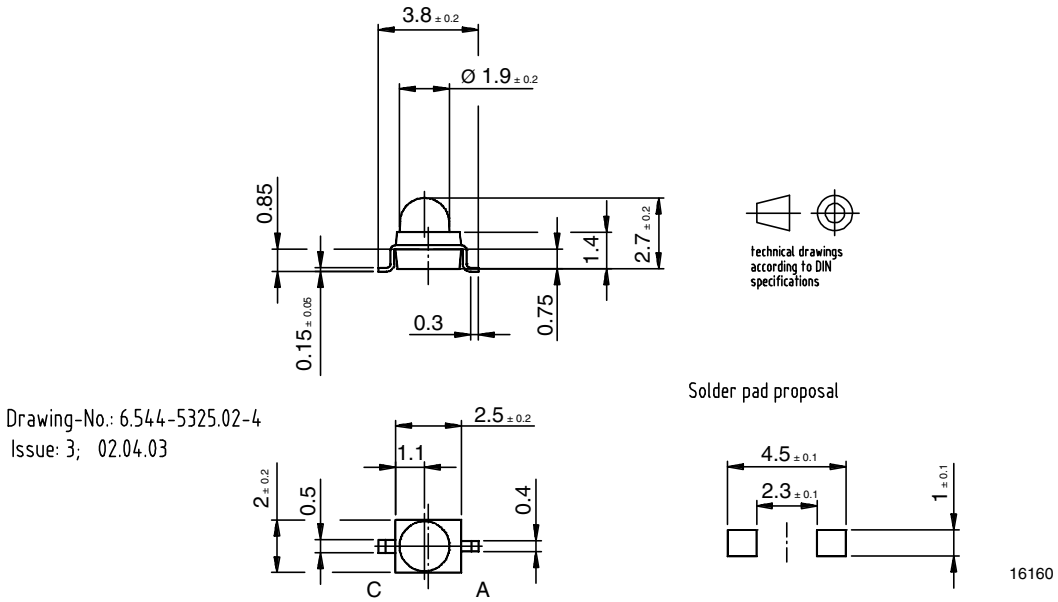
PACKAGE DIMENSIONS in millimeters: **TSML1000**



Drawing-No.: 6.544-5326.02-4
Issue: 3; 02.04.03

16159

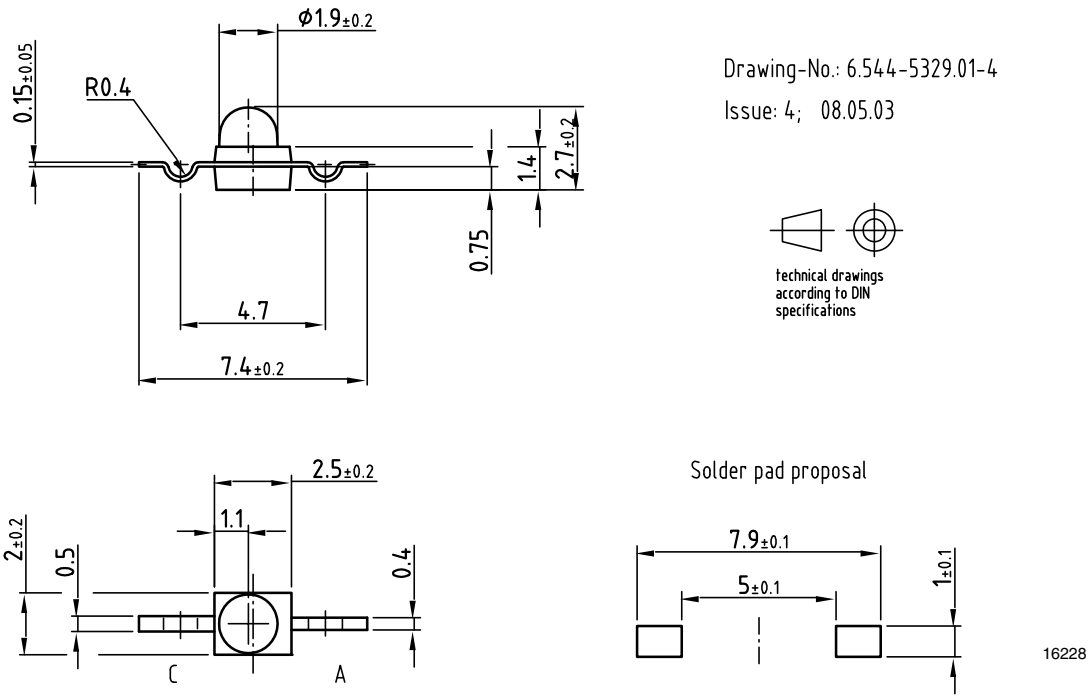
PACKAGE DIMENSIONS in millimeters: **TSML1020**



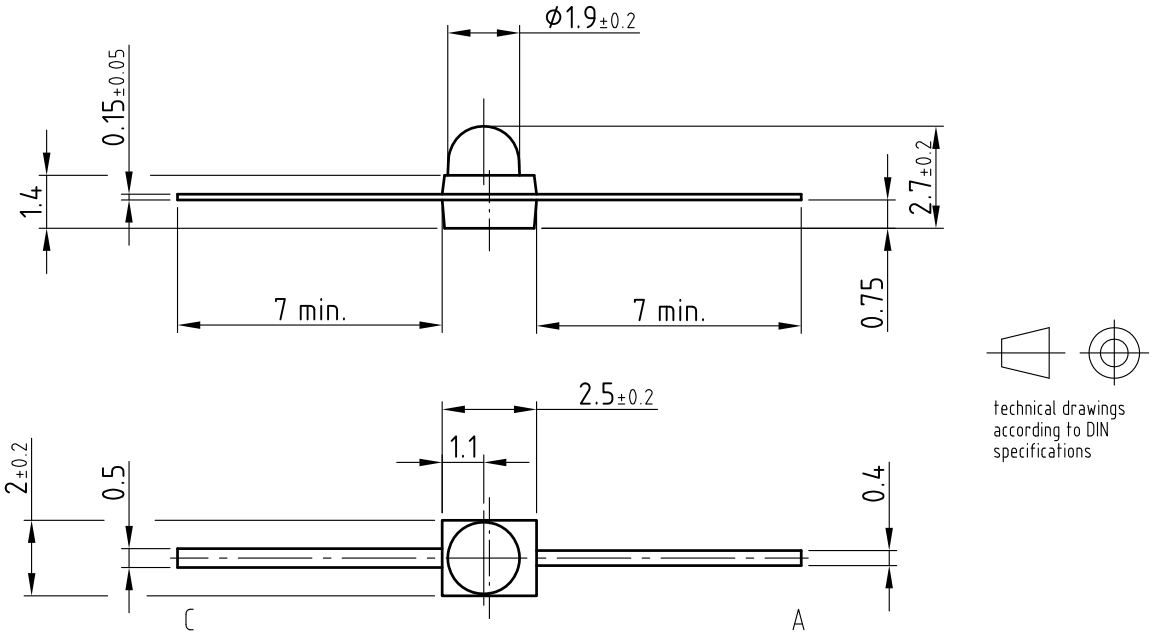
Drawing-No.: 6.544-5325.02-4
Issue: 3; 02.04.03

16160

PACKAGE DIMENSIONS in millimeters: **TSML1030**

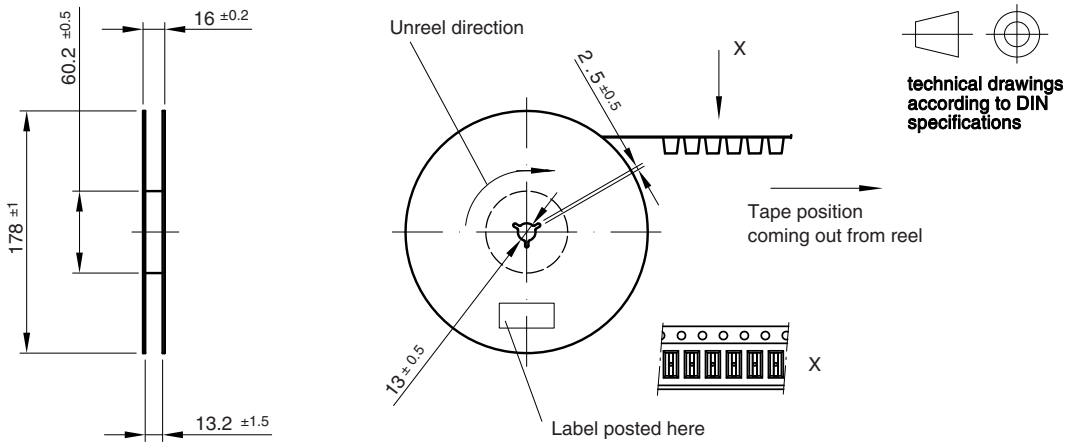


PACKAGE DIMENSIONS in millimeters: **TSML1040**

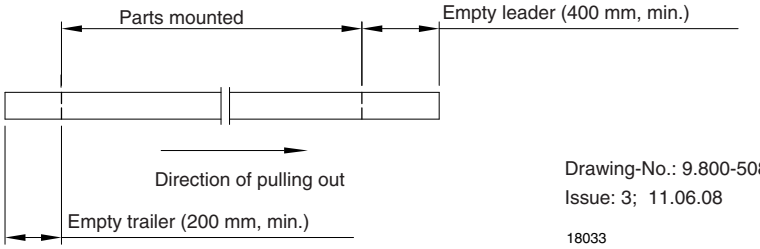


Drawing-No.: 6.544-5339.02-4
Issue: 3; 02.04.03
16760

REEL DIMENSIONS in millimeters



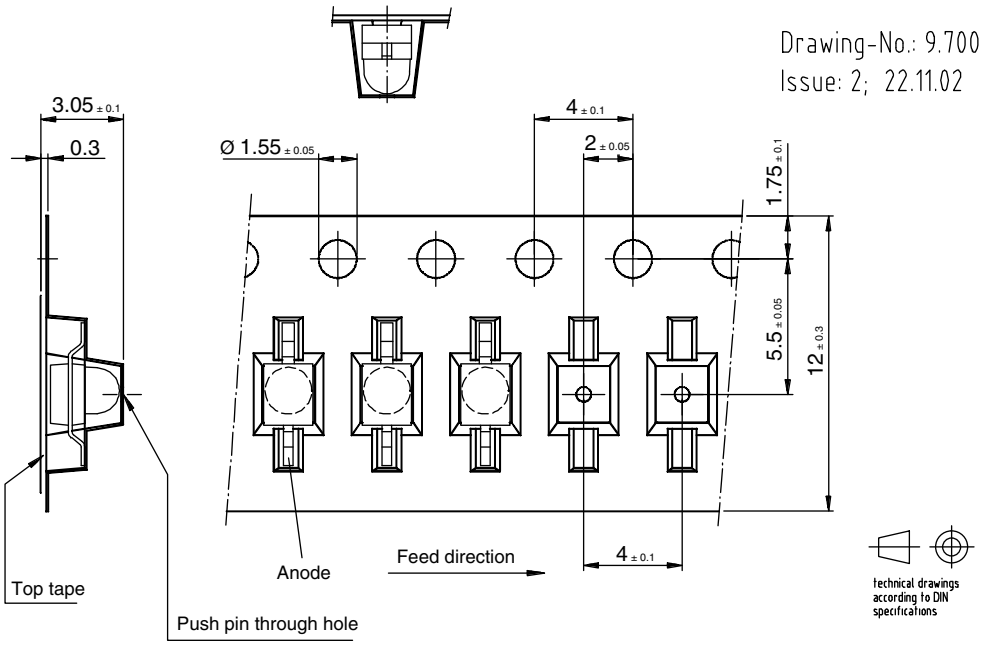
Leader and trailer tape:



Drawing-No.: 9.800-5080.01-4
Issue: 3; 11.06.08

18033

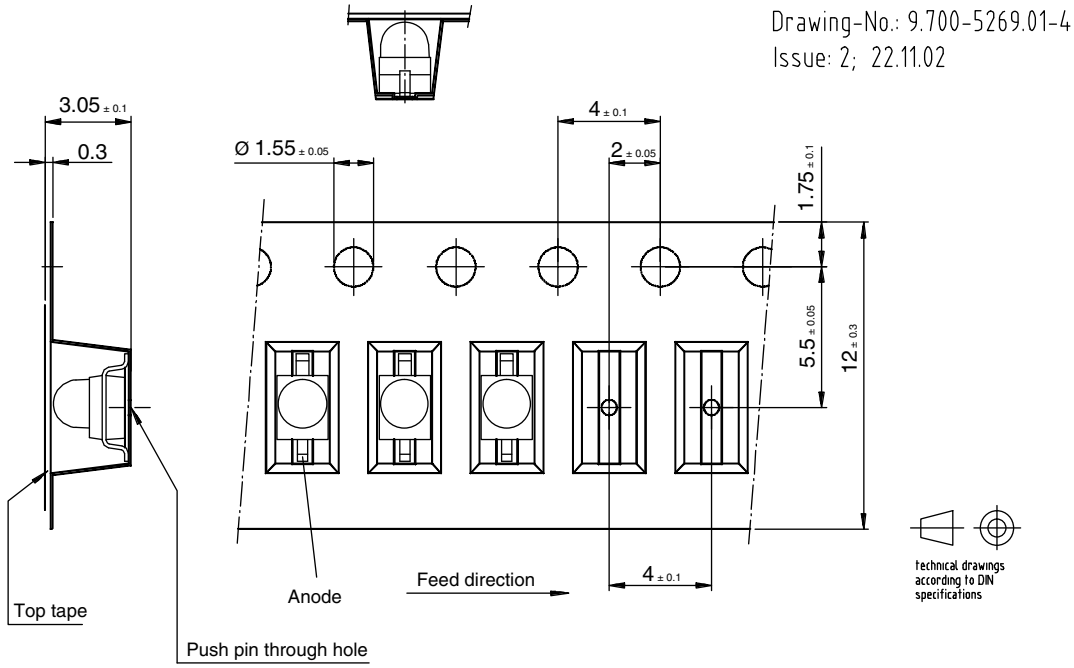
TAPING DIMENSIONS in millimeters: **TSML1000**



Quantity per reel: 1000 pcs or 5000 pcs

18030

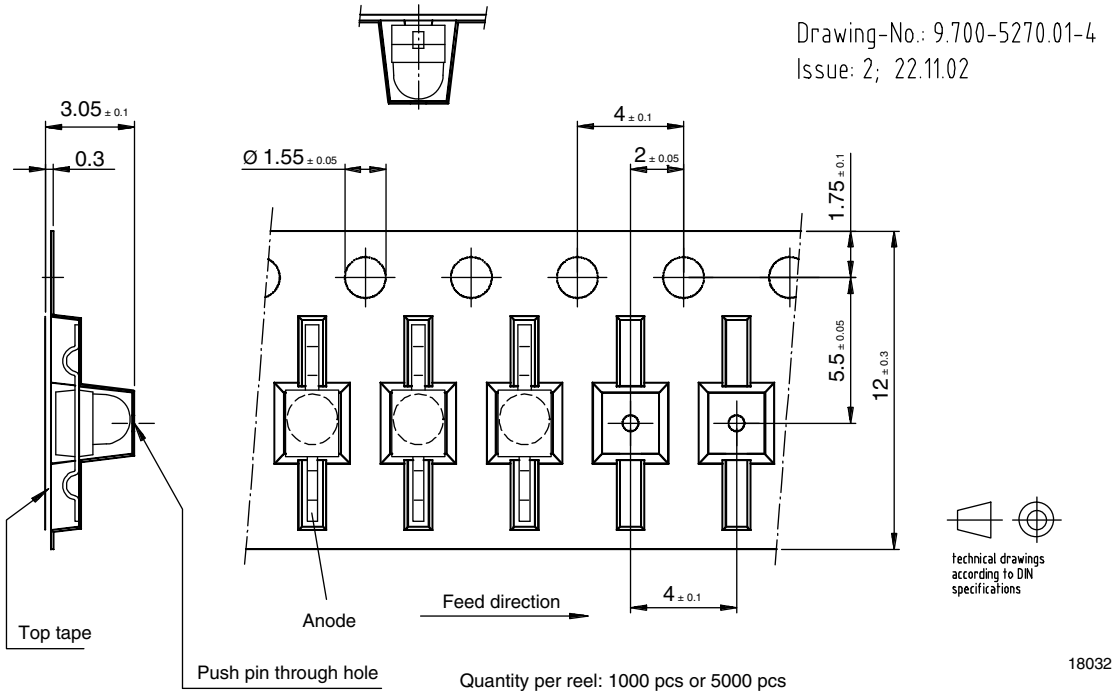
TAPING DIMENSIONS in millimeters: **TSML1020**



Quantity per reel: 1000 pcs or 5000 pcs

18031

TAPING DIMENSIONS in millimeters: **TSML1030**



18032

Quantity per reel: 1000 pcs or 5000 pcs

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