

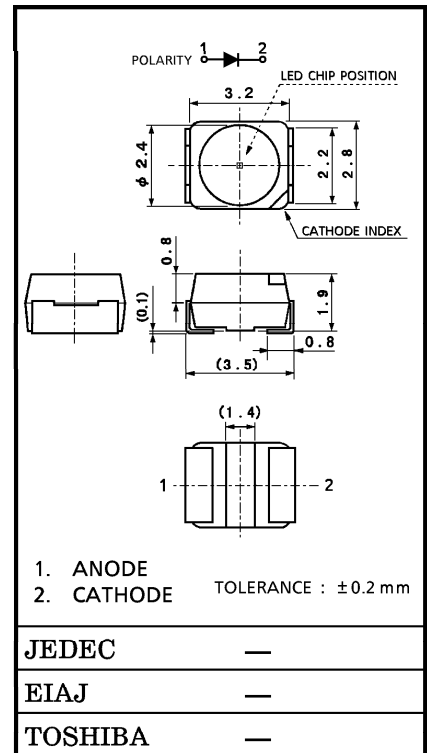
TOSHIBA LED LAMP

# S4F42Q1 (T09), S4F42Z1 (T09)

PANEL CIRCUIT INDICATOR

Unit in mm

- Surface Mount Device
- 3.2 (L) × 2.8 (W) × 1.9 (H) mm Size
- Flat-top Type
- InGaAlP LED (High-Bright type)
- Line-up  
2 Colors : Green, Pure Green
- Available of Automounting Machine Use
- Low Drive Current, High Intensity Light Emission
- Clear luminescence is obtained.
- High Operating Temperature :  $T_{opr} \cdot T_{stg} \quad -40 \sim 100^{\circ}\text{C}$
- Standard Embossed Taping  
8mm Pitch : T09 (1000 pcs / reel)
- Applications : Automotive use, Message Signboard, Backlight, etc.



Weight : 35 mg

LINE-UP

PRODUCT NAME	COLOR	MATERIAL
S4F42Q1	Green	InGaAlP
S4F42Z1	Pure Green	InGaAlP

MAXIMUM RATINGS (Ta = 25°C)

PRODUCT NAME	FORWARD CURRENT $I_F$ (mA)	REVERSE VOLTAGE $V_R$ (V)	POWER DISSIPATION $P_D$ (mW)	OPERATING TEMPERATURE $T_{opr}$ (°C)	STORAGE TEMPERATURE $T_{stg}$ (°C)
S4F42Q1	50	4	140	-40~100	-40~100
S4F42Z1	50	4	140		

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

PRODUCT NAME	FORWARD VOLTAGE $V_F$				REVERSE CURRENT $I_R$	
	MIN	TYP	MAX	$I_F$	MAX	$V_R$
S4F42Q1	—	2.27	2.8	20	50	4
S4F42Z1	—	2.27	2.8	20	50	4
Unit	V			mA	$\mu$ A	V

OPTICAL CHARACTERISTICS-1 (Ta = 25°C)

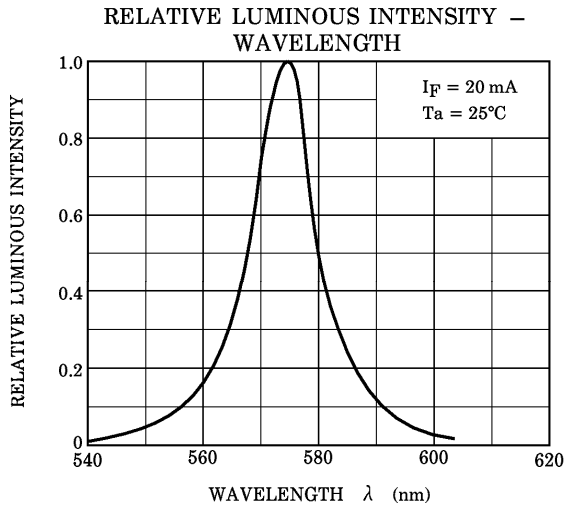
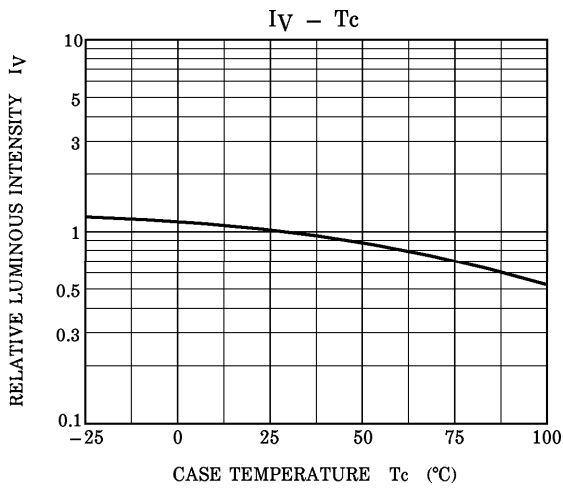
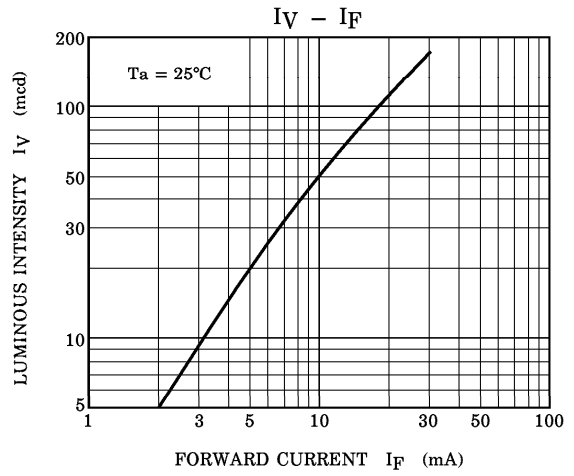
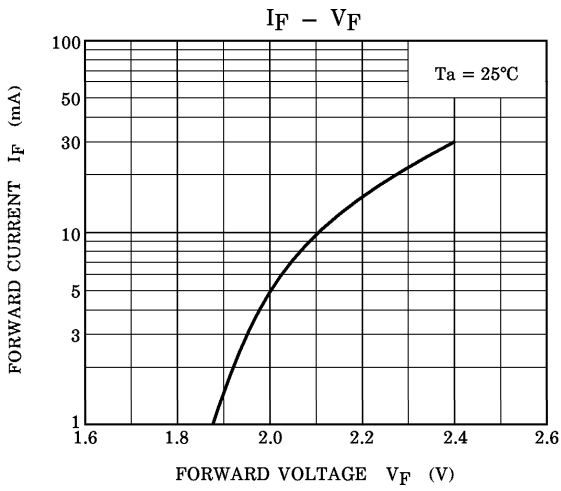
PRODUCT NAME	LUMINOUS INTENSITY $I_v$			
	MIN	TYP.	MAX	$I_F$
S4F42Q1	47.6	110	—	20
S4F42Z1	8.5	25	—	20
Unit	mcd			mA

OPTICAL CHARACTERISTICS-2 (Ta = 25°C)

PRODUCT NAME	EMISSION SPECTRUM							$I_F$
	Peak Emission Wavelength $\lambda_p$			$\Delta\lambda$	Dominant Wavelength $\lambda_d$			
	MIN	TYP.	MAX		MIN	TYP.	MAX	
S4F42Q1	—	574	—	11	—	571	—	20
S4F42Z1	—	562	—	11	—	558	—	20
UNIT	nm			nm	nm			mA

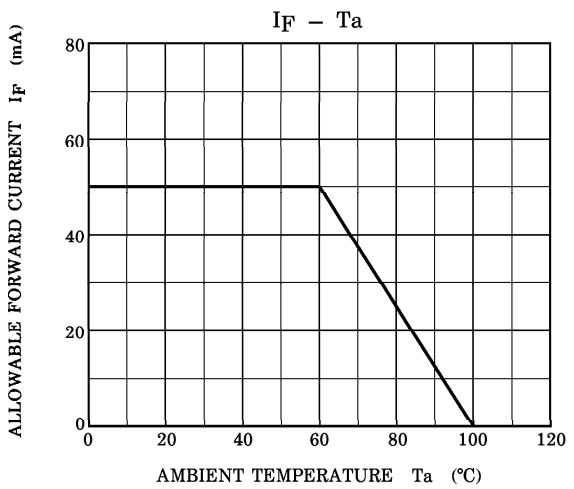
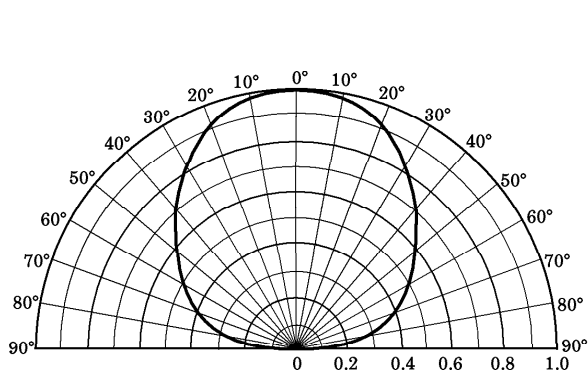
(Note) : This visible LED lamp also emits some IR light.  
 If a photodetector is located near the LED lamp, please ensure that it will not be affected by this IR light.

**S4F42Q1**

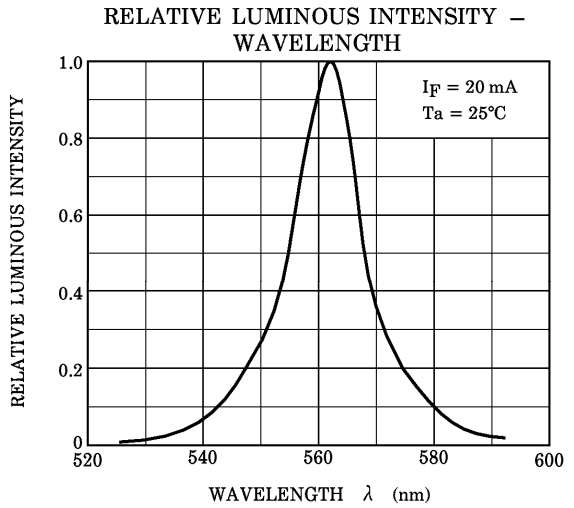
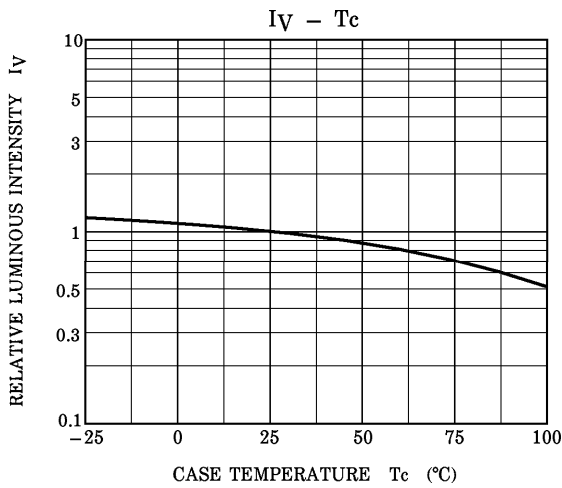
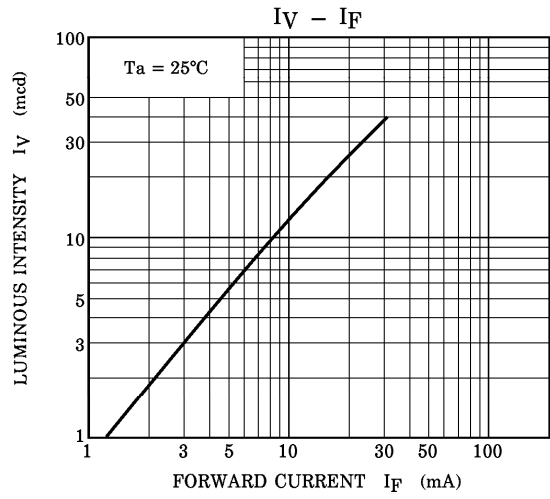
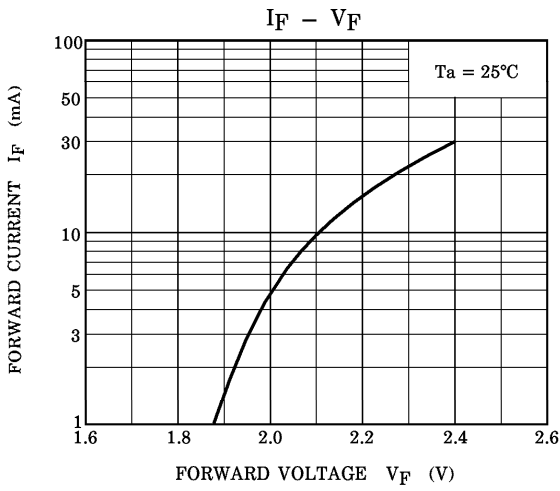


**RADIATION PATTERN**

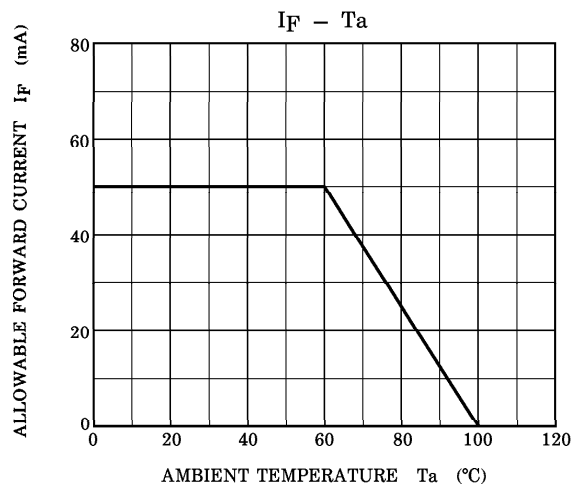
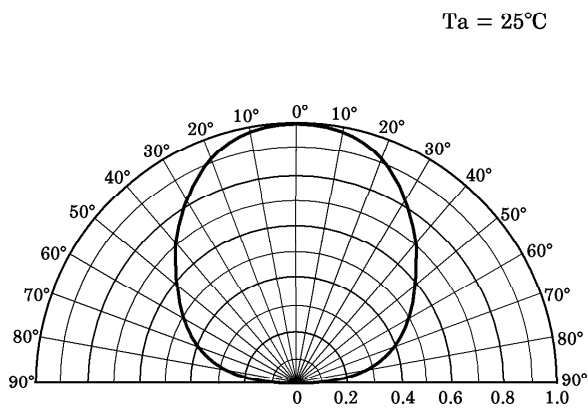
$T_a = 25^\circ\text{C}$



**S4F42Z1**



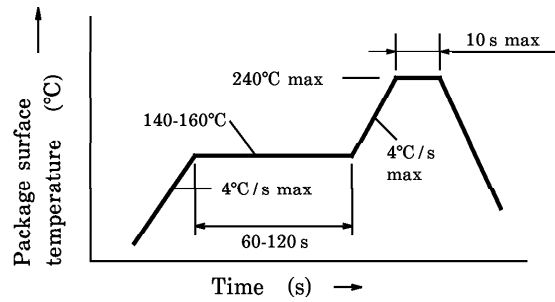
**RADIATION PATTERN**



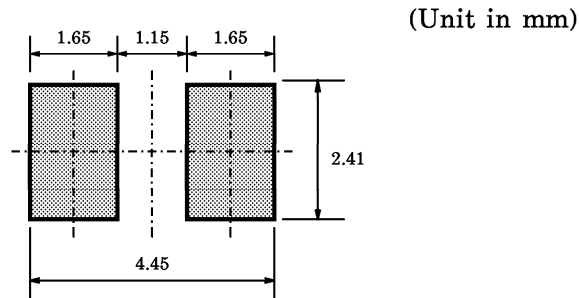
**SOLDERING**

Reflow soldering

Temperature profile



Recommended soldering pattern



**RECOMMENDATION FOR MANUAL SOLDERING**

- Soldering iron : Less than 25 W
- Temperature : Lower than 300°C
- Time : Within 3 s

**POST SOLDERING CLEANING**

When cleaning after soldering is needed, the following condition must be adhered to.

- Cleaning solvents : AK225 or Alcohol
- Temperature : 50°C (max) for 30 s (max) or 30°C (max) for 3 minutes (max)
- Ultrasonic : 300 W max

**PACKAGING**

This LED device is packed in an aluminum envelope with silica gel to avoid moisture absorption. The optical characteristics may be affected by exposure to moisture in the air before soldering and it should be stored under the following conditions.

- Temperature : 5~30°C
- Relative Humidity : 60% or lower

Baking is required if the device have been stored with unopened for more than 6 months or if the aluminum envelope has been opened for more than 168 h.

Recommended baking condition is 60°C for 12 h minimum in the dry atmosphere.

**PRECAUTION FOR MOUNTING**

- Do not apply force to the plastic part of the LED in high temperature conditions.
- Do not apply friction using a hard materials for avoid injuring the plastic part of the LED.
- Keep the LED away from any other parts when assembling boards into the set.

**TAPING SPECIFICATIONS**

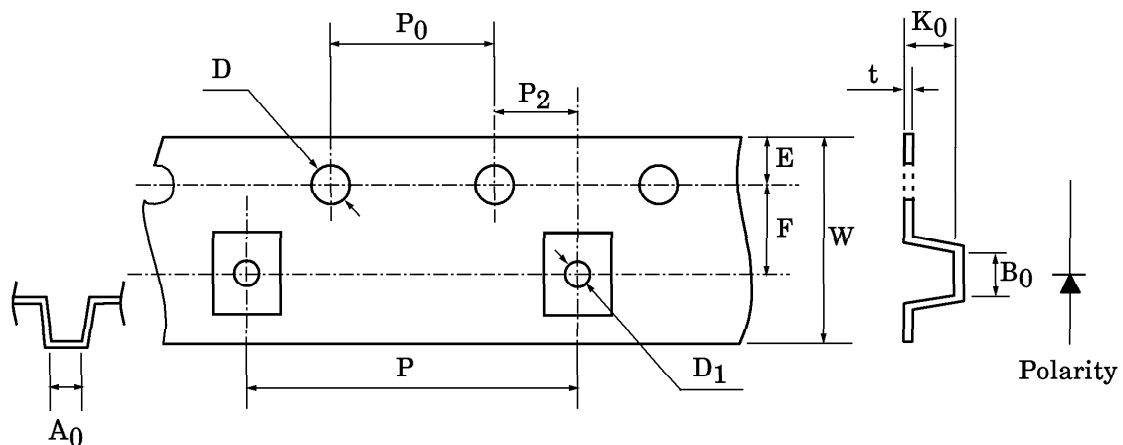
1. Taping Number

- (1) Name : T09
  - (2) Example : S4F42□ (T09)
- └─┬─┘ Tape Specification  
└─┬─┘ Device Identifier

2. Dimension of tape

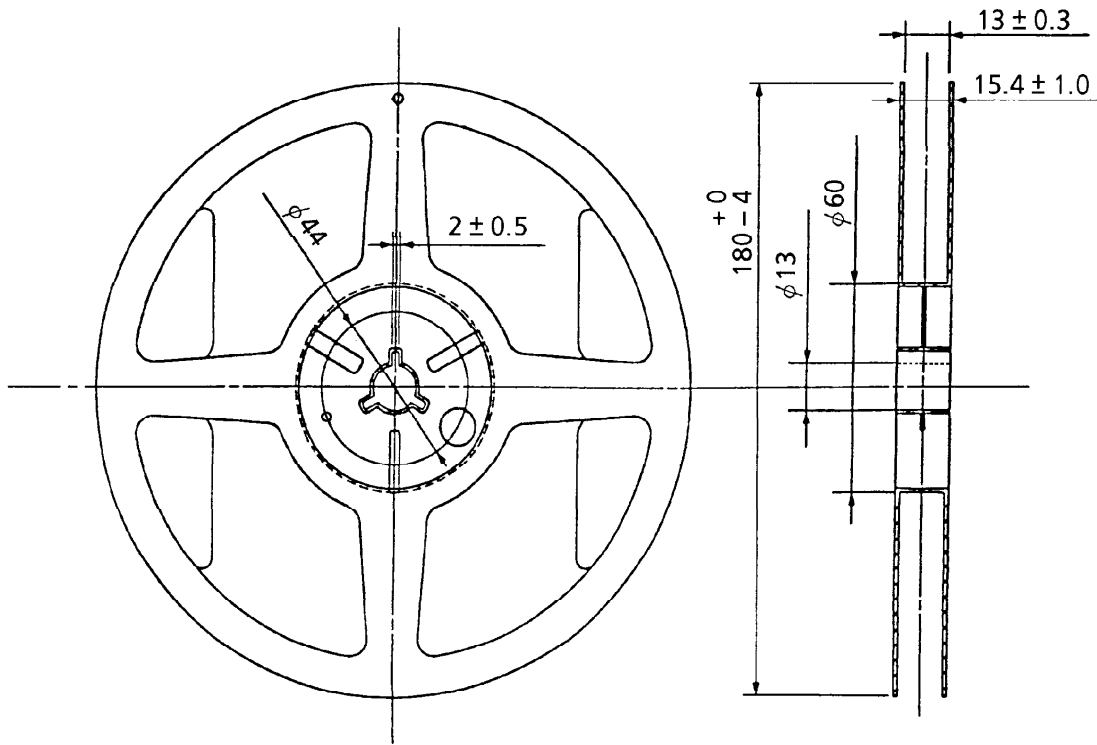
(Unit in mm)

ITEM	DIMENSIONS	TOLERANCE	ITEM	DIMENSIONS	TOLERANCE
D	1.5	+0.1 / -0	P <sub>2</sub>	2.0	±0.05
E	1.75	±0.1	W	12.0	±0.3
P <sub>0</sub>	4.0	±0.1	P	8.0	±0.1
t	0.3	±0.05	A <sub>0</sub>	2.9	±0.1
F	5.5	±0.05	B <sub>0</sub>	3.7	±0.1
D <sub>1</sub>	1.5	+0.1 / -0	K <sub>0</sub>	2.3	±0.1



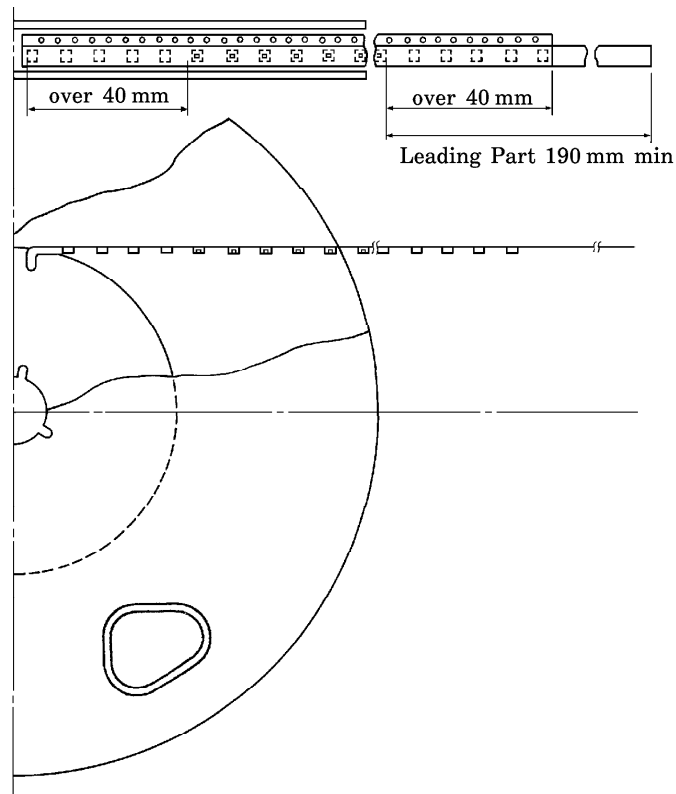
3. Dimension of reel

(Unit in mm)



4. Leading part

(Unit in mm)



5. Packing Form

(1) Number of Devices per Reel and Carton

Reel	1000 devices
Carton	5000 devices

(2) Packing : Silica gel and reel are packed into sealed aluminum pack.

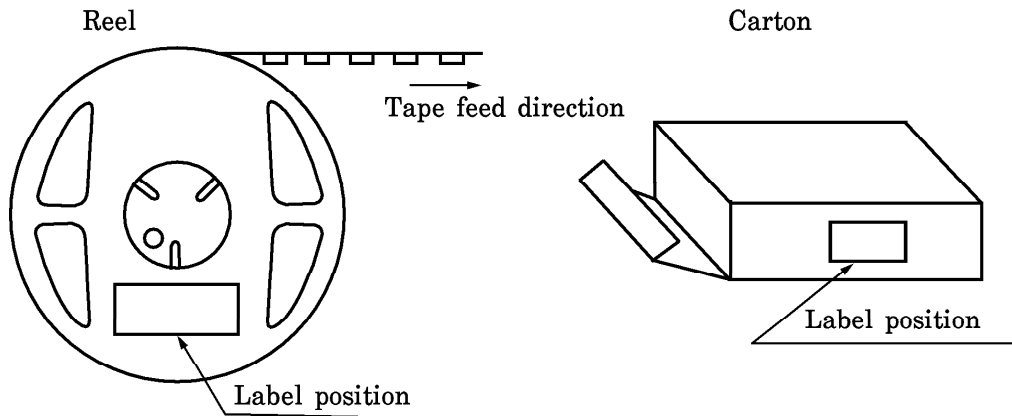
6. Notation Method

(1) Example : S4F42Q1 (T09)

P/N :

TYPE	S4F42Q1		
ADD. C	(T09)	Q'TY	1000 pcs
NOTE	(rank symbol)		Lot Number

(2) Label location :



Aluminum pack : Attached to center of one side



**RESTRICTIONS ON PRODUCT USE**

000707EAC

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