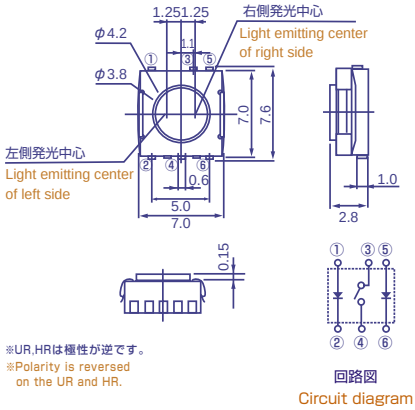
Surface Mountable Illuminated Switch LS20 Series

7.6(L)×7.0(W)×2.8(H)mm

●外形寸法図/Outline drawing

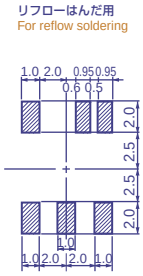
LS22AAタイプ/LS22AA type



※UR,HRは極性が逆です。
※Polarity is reversed on the UR and HR.

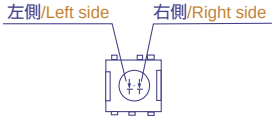
単位/Unit : mm

推奨はんだ付けパターン
The following soldering patterns are recommended for reflow-soldering:



LED部以外はLS21AA、LS20AAに共通。
Same as for LS21AA and LS20AA except for LED portion.
※鉛フリー用リフロー温度プロファイルには対応しておりません。
The reflow temperature profile for lead-free is not supported.

※1の図/sketch for ※1



■ 特徴／Features

1. 従来のSMD(表面実装デバイス)タイプのスイッチとLEDを1つのケース内にパッケージした画期的な超小型照光式スイッチです。
2. 2色発光タイプと単色発光タイプがあり、色も自由に組み合わせできます(ご希望によっては、照光なしのタイプも納入可能です。)
3. マウント時間、並びに部品点数の削除ができ、大幅なコストダウンが期待できます。

1. The superb surface-mountable illuminated switch integrated with an LED or two LEDs into super-miniature package.
2. One-color or two-colors type is available. The color of illumination can be a combination of four:red, orange, yellow and green. Non-illuminated type is also available upon request.
3. The mounting space can be greatly reduced, while allowing higher density mounting. In addition, the number of parts and time for mounting onto the substrate are also reduced,resulting in lower production costs.

●部品コード/Code for Parts

LS2 0 AA - 2 R/PG T

〈シリーズ/Series〉

タイプNo./Type No.

0:非照光タイプ
0:Non-illuminated type
1:単色発光タイプ(※1)
1:One-color lighting type(※1)
2:2色発光タイプ(※2)
2:Two-colors lighting type(※2)

形状記号/Shape symbol

記号 Symbol	プランジャー形状 Plunger profile	カバー形状 Cover profile
AA	A	A
BB	B	B

操作荷重/Operating force

1:1.18N(120gf)
2:1.77N(180gf)
3:2.35N(240gf)

発光色(左側/右側)/Lighting color(left side/right side)

標準輝度　R:赤　D:橙　Y:黄　G:緑　FG:新緑　PG:純緑
Standard brightness　R:Red　D:Orange　Y:Yellow　G:Green　FG:Fresh green　PG:Pure green
高輝度　SD:橙
Super brightness　SD:orange
超高輝度　UR:赤
Ultra brightness　UR:Red

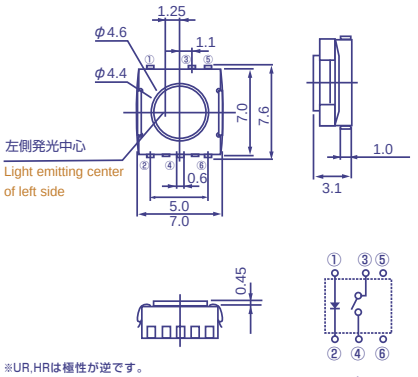
包装形態/Packing mode

T:テーピング,　無記入:バルク
T:Taping,　Non-code:Bulk packing

(※1)　単色発光タイプはLEDが左側に実装されます。(図参照のこと)
(※1)　In the case of one-color lighting type LED is mounted on the left side as per sketch.
(※2)　2色発光タイプのLEDの組み合わせは左側に長波長のLED、右側に短波長のLEDとなります。
(※2)　In the case of two-colors lighting type LED of longer wave length is mounted on the left side and LED of shorter wave length on the right side.

●外形寸法図/Outline drawing

LS21BBタイプ/LS21BB type



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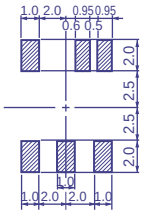
※Polarity is reversed on the UR and HR.

単位/Unit : mm

推奨はんだ付けパターン
The following soldering patterns are recommended for reflow-soldering:

リフローはんだ用
For reflow soldering



LED部以外はLS21BB、LS20BBに共通。
Same as for LS21BB and LS20BB except for LED portion.
※鉛フリー用リフロー温度プロファイルには対応しておりません。
The reflow temperature profile for lead-free is not supported.

■ 用途／Application

ルミスイッチLS20シリーズは操作用スイッチとして次のような製品に使用できます。
TV、VTR、音響機器、車載用機器、通信用機器、計測機器、ファクシミリ、電話機、カーオーディオ製品等。

LUMISWITCH, LS20 series, can be used as a function control switch in the following applications.
TV, VCR, audio equipment, automotive and telecommunication equipment, measuring instruments, facsimiles, telephone sets, car audio products etc.

●絶対最大定格/Absolute Maximum Rating

スイッチ部/Switch portion

12V　20mA

LED部(各LEDにつき)/LED portion (Per LED chip) (Ta 25℃)

Item		Symbol	Rating
許容損失 Power dissipation	(mW)	P_D	65
順電流 Forward current	(mA)	I_F	25
パルス順電流 Pulse forward current	(mA)	I_{FP}	100※
逆電圧 Reverse voltage	(V)	V_R	5
使用温度範囲 Operating temperature range	(℃)	−30～+80	
保存温度範囲 Storage temperature range	(℃)	−40～+90	

※ I_{FP} の条件は duty 1/10 、パルス巾0.1msec です。
※ Condition for I_{FP} is pulse of 1/10 duty and 0.1msec width.

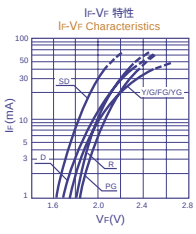
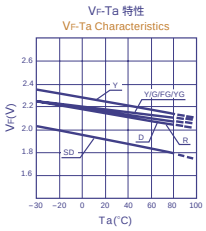
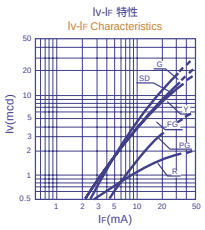
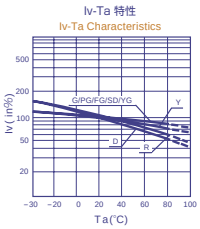
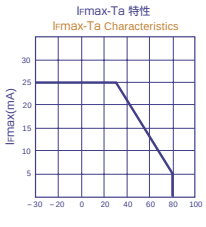
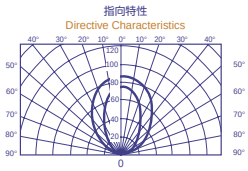
●電気的・光学的・機械的特性/Electro-optical and Mechanical Characteristics

スイッチ部/Switch portion (Ta 25℃)

Item	スイッチ作動力/Switch operating force		
	1.18N	1.77N	2.35N
最大定格/Maximum rating	DC12V 20mA		
接触抵抗/Contact resistance	100mΩ以下/100mΩ or less		
絶縁抵抗/Insulation resistance	100MΩ以上/100MΩ or more		
耐電圧/Withstanding voltage	AC250V 1分間/AC250V for one minute		
バウンス/Bounce	20ms以下/20ms or less		
ストローク/Stroke	0.25mm		
作動力/Operating force	1.18±0.39N	1.77±0.49N	2.35±0.59N
動作寿命/Operating life (times)	10万回以上 100,000 or more	5万回以上 50,000 or more	3万回以上 30,000 or more

LED部/LED portion (Ta 25℃)

Lighting color		V_F			λ_P	$\Delta\lambda$	I_V※		
		I_F (mA)	typ (V)	max (V)	typ (nm)	typ (nm)	I_f (mA)	min (mcd)	typ (mcd)
標準輝度	赤/Red	20	2.2	2.6	700	100	20	0.74	1.78
	橙/Orange	20	2.2	2.6	605	40	20	3.4	10
	黄/Yellow	20	2.1	2.6	589	40	20	3.5	8.32
	緑/Green	20	2.2	2.6	567	26	20	3.3	13.2
	新緑/Fresh green	20	2.2	2.6	560	26	20	3.0	8.6
	純緑/Pure green	20	2.2	2.6	557	24	20	1.3	3.4
高輝度	橙/Super brightness orange	20	2.0	2.6	630	40	20	3.35	9.7
超高輝度	赤/Ultra brightness red	20	1.8	2.6	660	20	20	4.8	17.2

※ NIST 規格に準拠　※ Per NIST standards

■ 諸特性／Characteristics