Reliability Data

1) Hall Devices

The Sharp Hall devices were required to satisfy the reliability tests detailed in Table 4.

Table 4: Hall device reliability tests

Test	Test conditions * 1	Defect judgement value
Solderability*2	230 C, 5 s	
Solder heat resistance	260 C, 10 s	
Terminal Pull	Load 3 N, 5 s/terminal	
Shock test	15000m/s²,0.5ms for the X,Y and Z directions Three timessfor each direction	0.9×L <vb<1.1×u 0.8×l<rix<1.2×u="" 0.8×l<rixt<1.2×u="" maximum="" rated="" td="" u:="" value<=""></vb<1.1×u>
Variable- frequency oscillation	200m/s²,100~2000~100Hz for 44mina Four times each for the X, Y and Z directions	
Temperature cycle	-55℃ to +150℃ (30min.) (30min.) 50 cycles as above	
Highstemperature thigh- humidity.storage	+60°C,90%RH,11 00001h	L :Ratedminimum
Hightemperature storage	+150℃, 1 000 h	value
Low-temperature storage	−55°C, 1 000 h	
Operating life	$P_a = 150 \text{mW}, T_a = 25 \text{ C}, 1000 \text{ h}$	

^{*1} Details are based on JIS C 7021.

(Notice) For LT120A, LT140A and LT140SA,

 $\begin{array}{cc} V_{HO}/V_{H} & \leq 15\% \\ For \ LT135A \\ V_{HO} & \leq 20 mV \end{array}$

2 Hall ICs for noncontact switch

(LT230A/251A/253A/260A/261A/262A/280A)

were required to satisfy the reliability tests described in '1-able 5.

Table 5: Reliability tests of Hall IC for noncontact switch

Test	Test conditions * 1	Defect judgement value
Solderability * 2	230(,5s	
Solder heat resistance	260 (10s	[
Terminal pull	Loadl33N,55 s/terminal	
Shock test	15000mm/s5005mm/s for the X, Y and Z directions Three times for each direction	
Variable- frequency oscillation	200m/s;100~220009~1000Hz for 4 min. Four times each for the X. Yand ZZ directions	
Temperature cycle	-55 °C to +150 °C (30min.) (30min.) 50 cycles as above	
High-temperature, high- humidity storage	+60°C, 90%RH, 1 000 h	
High-temperature. storage	±150°C, 1 000 h	
Low-temperature storage	−55°C, 1 000 h	L:Ratedminimum
Operating life	$Vcc=16V^{*3}$, $Ta=25^{\circ}C$, 1 000 h	value

3 Hall ICs for fan motor (LT202A)

1.'1"202.4 was required to satisfy the reliability tests detailed in Table 6.

Table 6: Reliability tests of Hall IC for fan motor

Test	'lest conditions*1	Defect judgement value
Solderability * 2	230°C, 5 s	
Solder heat resistance	260C, 10S	$B_{1i}-B_{1i}$ $\leq 5mT$
Terminal pull	Load 3 N, 5 s/terminal	$B_{2i} - B_{2i} + \le 5mT$
Shock test	and Z directions Three times for each direction	0.8×L≤Icc≤1.2×U Vin≤1.5×L Ven≤1.5×U
Variable frequency oscillation	200m/s ² ,100~2000~100Hz for 4 min. Four timeseach for the X. Y and Z directions	Vout<'5×U Ileak<1.5×U
Temperature cycle	-55°C to +150°C (30min.) (30min.) 50 cycles as above	Ioc≤1.5×U
High-tempetaturemperat	^{ure} +ф ^ф С, 90% RH, 1 000 h	U : Rated
High-temperature. storage	+150°C, 1 000 h	maximum valu
Low-temperature storage	55℃, 1 000 h	L Rated minimun
Operating liffe	Pu=400mW, Ta=255C, 1 0000fh	value

^{*1} Details are based on JIS C 7021.

 $B_{13} \ \vdots \ B_{1}$ before test $B_{14} \ \vdots \ B_{2}$ before test $B_{24} \ \vdots \ B_{2}$ after test $B_{24} \ \vdots \ B_{24}$ after test

| Born | Born before test | Born | Born after test | Bran | Bran before test | Bran | Bran after test | *3 LT262A | Vcc = 6.5V, LT280A | Vcc = 6.0V |

^{*2} Soldering is performed on 95% or more of total dip soldering area without protrusions or cavities being concentrated in one location.

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^{*1} Details are based on JIS C 7021.

 ² Soldering is performed on 95% or more of the total dip soldering area without protrusions or cavities being concentrated in one location.