

PAT9136E1 series

Reliability Data Sheet V1.2

Table 1. Dynamic Operating Life Test

Test Item	Reference Standard	Test Conditions	Units Tested	Units Failed
High Temperature Operating Life (HTOL)	JESD22-A108	125°C, Max Vdd / Vcc 1000 hours	77 pcs	0

Table 2. Environmental Tests

Test Item	Reference Standard	Test Conditions	Units Tested	Units Failed
Pre-Condition	J-STD-020 JESD22-A113	MSL=3 Baking: 125°C@24hrs Soaking: 30°C, 60%RH, 192 hrs. Reflow: Max 260°C, 3 cycles	135 pcs * 3 Lots	0
High Temperature Storage test (HTS)	JESD22-A103	125°C 1000 hours	45 pcs * 3 Lots	0
High Temperature & High humidity test (THT)	JESD22-A101	85°C/85%RH 1000 hours	45 pcs * 3 Lots	0
Temperature Cycle (TCT)	JESD22-A104	-40°C to 125°C 1000 cycles	45 pcs * 3 Lots	0

Table 3 Electrical Tests

Test Item	Reference Standard	Test Conditions	Units Tested	Units Failed
ESD	JS-001-2017 MIL-STD-883G Method 3015.7 JS-002-2018	2kV Human Body Model 500V Charge Device Model	3/pin combination 3/pin combination	0 0
Latch Up	JESD78	Class 1, Level A+/-100mA	9	0

Table 4. MTTF/FIT Calculation (Activation Energy: 0.5 eV)

Ambient Temperature(°C)	60% Confidence		95% Confidence	
	MTTF	FIT	MTTF	FIT
35	13,037,877.7	76.7	3,987,835.1	250.8
45	7,209,719.9	138.7	2,205,203.6	453.5
55	4,133,502.6	241.9	1,264,295.3	791.0
65	2,449,141.6	408.3	749,107.6	1,334.9
75	1,495,454.0	668.7	457,407.6	2,186.2
85	938,644.1	1,065.4	287,098.7	3,483.1

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