

Date: April 2004

Subject: SMIC Wafer Fab Facility Reliability Qualification - Update

SMIC's CMOS, 3.3 volt, 0.35-micron process was recently verified for acceptability to Pericom's standard die level and process qualification requirements. A total of 120 units each from two separate wafer lots processed in different work weeks successfully completed 1000 hours of Dynamic High Temperature Operating Life (DHTOL) test at 150°C and 3.6 volts applied bias with no failures. The PI74SSTV16857V product was used as the qualification vehicle, and therefore all products using this same process technology and design rules will meet Pericom's Wafer Fab Process Qualification requirements. The device also passed High Temp Storage Life (HTSL), Unbiased HAST (UHAST), and Temperature Cycle (TMCL) testing as shown in the table below

The equivalent long-term life test FIT rate is 53.6 for any Pericom device using the same process and design rules, with a calculated MTBF of 240,000 hours. The FIT calculation was made using the Arrhenius equation, with an Activation energy of 0.5 eV, an assumed system operating temperature of 55 °C, and a Confidence factor of 60%.

Pericom's Qualification Test results:

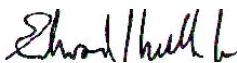
Rel Lot #	Device Type	Pkg. Type	Date Code	Stress Test	Stress Condition	Stress Duration	Sample Units	Results Pass/Fail
Q03004-1A	PI74SSTV16857V	V48	0306OY	DHTOL	150°C, 3.6 v	168 hrs	120	120/0
Q03004-1A	PI74SSTV16857V	V48	0306OY	DHTOL	150°C, 3.6 v	500 hrs	120	120/0
Q03004-1A	PI74SSTV16857V	V48	0306OY	DHTOL	150°C, 3.6 v	1000 hrs	120	120/0
Q03004-1B	PI74SSTV16857V	V48	0306OY	HTSL	150°C	168 hrs	100	100/0
Q03004-1B	PI74SSTV16857V	V48	0306OY	HTSL	150°C	1000 hrs	100	100/0
Q03004-2A	PI74SSTV16857V	V48	0327OY	DHTOL	150°C, 3.6 v	168 hrs	120	120/0
Q03004-2A	PI74SSTV16857V	V48	0327OY	DHTOL	150°C, 3.6 v	500 hrs	120	120/0
Q03004-2A	PI74SSTV16857V	V48	0327OY	DHTOL	150°C, 3.6 v	1000 hrs	120	120/0
Q03004-2B	PI74SSTV16857V	V48	0327OY	HTSL	150°C	168 hrs	100	100/0
Q03004-2B	PI74SSTV16857V	V48	0327OY	HTSL	150°C	1000 hrs	100	100/0
Q03004-3A	PI74SSTV16857A	A48	0327OY	UHAST	130°C	96 hrs	80	80/0
Q03004-4A	PI74SSTV16857A	A48	0327OY	TMCL	-65, +150 °C	500 cycles	76	76/0

Other device types covered by this qualification that can be manufactured at SMIC using the same process and design rules:

PI74SSTV16857, 74SSTV116857D, 74SSTV116859, 74SSTV116859F, 74SSTV132852, 74SSTV132852F
PI74SSTVF16857, 74SSTVF16857A; 74SSTVF16859, 74SSTVF16859A, 74SSTVF32852, 74SSTVF32852A,
PI6C48530.

If there are any questions about this device qualification, please let me know.

Regards,



Edward J. Mello, Jr.
Director, Quality Systems
Phone: (408) 435-0800, Ext. 207
FAX: (408) 321-0324
E-Mail: emello@pericom.com