

Reliability Report: DS21Q43 Reliability Data

Process:

Metal: Gate Ox Thickness: Passivation:

Summary Data with Chi-Square Distribution Assumed.
Stress Ambient Temperature and Voltage to
Field Ambient Temperature And Voltage

Cf: Tuse:
Ea: Vuse:
β:

DESCRIPTION	VEHICLE	REV	DATE CODE	CONDITION	READPOINT	QUANTITY	FAILS	FILE #	DEVICE HRS
HIGH TEMPERATURE OPERATING LIFE									
INFANT LIFE	DS21Q43	A2-A	9607	125C, 6.0 VOLTS	48 HOURS	266	1	17225	1640725
HIGH VOLTAGE LIFE		A2-A	9607	125C, 6.0 VOLTS	336 HOURS	116	0		5008530
		A2-A	9607	125C, 6.0 VOLTS	1000 HOURS	112	0		9556506
		A2-A	9607	125C, 6.0 VOLTS	1500 HOURS	112	0		7196164
		A2-A	9607	125C, 6.0 VOLTS	2000 HOURS	112	0		7196164
HIGH VOLTAGE LIFE	DS21Q43	A2-A	9623	125C, 6.0 VOLTS	48 HOURS	92	0		567469
		A2-A	9623	125C, 6.0 VOLTS	336 HOURS	92	0		3404814
		A2-A	9623	125C, 6.0 VOLTS	1000 HOURS	92	0		7849987
		A2-A	9623	125C, 6.0 VOLTS	1500 HOURS	92	0		5911135
		A2-A	9623	125C, 6.0 VOLTS	2000 HOURS	92	0		5911135
		A2-A	9623	125C, 6.0 VOLTS	48 HOURS	81	0		499619
		A2-A	9623	125C, 6.0 VOLTS	336 HOURS	81	0		2997716
		A2-A	9623	125C, 6.0 VOLTS	1000 HOURS	80	0		6826076
		A2-A	9623	125C, 6.0 VOLTS	1500 HOURS	80	0		5140117
		A2-A	9623	125C, 6.0 VOLTS	48 HOURS	108	0		666159
		A2-A	9623	125C, 6.0 VOLTS	336 HOURS	108	0		3996955
		A2-A	9623	125C, 6.0 VOLTS	1000 HOURS	108	0		9215202
		A2-A	9623	125C, 6.0 VOLTS	1500 HOURS	108	0		6939158
		A2-A	9623	125C, 6.0 VOLTS	2000 HOURS	108	0		6939158
		A2-A	9623	125C, 6.0 VOLTS	48 HOURS	85	0		524292
		A2-A	9623	125C, 6.0 VOLTS	336 HOURS	85	1	18028	3145752
		A2-A	9623	125C, 6.0 VOLTS	1000 HOURS	84	0		7167380

Reliability Report: DS21Q43 Reliability Data

Process: Single Poly, Single Metal 0.6 μm Standard Process

Metal: Al / 0.5% Cu / 0.8% Si Gate Ox Thickness: 150 Å Passivation: TEOS Oxide / Nitride

Summary Data with Chi-Square Distribution Assumed.
Stress Ambient Temperature and Voltage to
Field Ambient Temperature And Voltage

Cf: 60% Tuse: 55 °C
Ea: 0.7 Vuse: 5.5 Volts
β: 1

DESCRIPTION	VEHICLE	REV	DATE CODE	CONDITION	READPOINT	QUANTITY	FAILS	FILE #	DEVICE HRS	
HIGH VOLTAGE LIFE	DS21Q43	A2-A	9623	125C, 6.0 VOLTS	1500	HOURS 84	0		5397123	
INFANT LIFE	DS21Q43	A3-A	0014	125C, 6.0 VOLTS	48	HOURS 223	0		1375495	
HIGH VOLTAGE LIFE		A3-A	0014	125C, 6.0 VOLTS	336	HOURS 75	0		3238274	
		A3-A	0014	125C, 6.0 VOLTS	1000	HOURS 73	0		6228794	
INFANT LIFE	DS21Q43	A3-A	0031	125C, 6.0 VOLTS	48	HOURS 229	0		1412504	
HIGH VOLTAGE LIFE		A3-A	0031	125C, 6.0 VOLTS	336	HOURS 75	0		3238274	
		A3-A	0031	125C, 6.0 VOLTS	1000	HOURS 73	0		6228794	
INFANT LIFE	DS21Q43	A3-A	0034	125C, 6.0 VOLTS	48	HOURS 234	0		1443345	
HIGH VOLTAGE LIFE		A3-A	0034	125C, 6.0 VOLTS	336	HOURS 76	0		3281451	
		A3-A	0034	125C, 6.0 VOLTS	1000	HOURS				
INFANT LIFE	DS21Q43	A3-A	9645	125C, 6.0 VOLTS	48	HOURS 287	0		1770256	
HIGH VOLTAGE LIFE		A3-A	9645	125C, 6.0 VOLTS	336	HOURS 116	0		5008530	
		A3-A	9645	125C, 6.0 VOLTS	1000	HOURS 116	0		9897810	
		A3-A	9645	125C, 6.0 VOLTS	1500	HOURS 116	0		7453170	
		A3-A	9645	125C, 6.0 VOLTS	2000	HOURS 116	0		7453170	
					DEVICE HRS: 1.72E+08	TOTALS:	2			
					FAILURE RATE	MTBF (yrs): 6313	FITS:	18		

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FILE #	FAILURE MODE	FAILURE MECHANISM
18028	S BIT CNTRL REG	IN PROCESS

PRODUCT	REV	DIE SIZE (x)	DIE SIZE (y)	No. of Transistors
DS21Q43	A2-A	341	341	
DS21Q43	A3-A	341	341	