

Modular Devices, Inc.
Screening Grades of Hybrid Microcircuits

Screening Level Name	Designator
Industrial	I
Military	M
Enhanced	E
Engineering Unit	EU
Low Rad	L
Low Rad Enhanced	LE
Space	S
Space Enhanced	SE

KEY OPERATIONAL PARAMETERS								
MDI GRADE	I	M	E	EU	L	LE	S	SE
Radiation (TID Si)	Not Rated	Not Rated	Not Rated	Not Rated	45 kRad	45 kRad	100 kRad	100 kRad
Operating Temp Range Case	-55°C to +85°C	-55°C to +85°C	-55°C to +125°C	-55°C to +85°C	-55°C to +85°C	-55°C to +125°C	-55°C to +85°C	-55°C to +125°C
Output Derates to Zero Load at °C	115°C	115°C	135°C	115°C	115°C	135°C	115°C	135°C

SCREENING REQUIREMENTS				SCREENING PARAMETERS	SCREENING ATTRIBUTES CHECKLIST													
Test	MIL-STD-883	MIL-STD-883	Detail		Procedure	Rev/Method	Condition	Requirements	Same	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed
Nondestruct	K 2023	—	100% Wires	Same	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bond Pull			PDA%	Same	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Internal Visual	K 2017	—	—	Same	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed
Temperature Cycling	K 1010	B	-55°C to +125°C 10 Cycles	Same	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed
Temperature Cycling	K 1010	C	-65C to +150C 10 Cycles	Same	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Constant Acceleration	K 2001	A1 Y1 Only	5000 G's	500 G's design limit standard ¹	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed
Mechanical Shock	K 2002	B Y1	1500G's 0.5mS	Same	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*
Random Vibration	K 2026	F	0.3 PSD, 20.0G's	Same	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*
PIND	K 2020	B	10 G's, 60 HZ	Same	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed
PIND	K 2020	A	20 G's, 40-250 HZ	Same	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*
Burn-in	K 1015	B	Maximum applied voltage and current	Nominal input voltage and 100% rated load	85°C Tcase 24 hrs	85°C Tcase 160 hrs	125°C Tcase 160 hrs	85°C Tcase 24 hrs	85°C Tcase 160 hrs	125°C Tcase 160 hrs	85°C Tcase 320 hrs (160 hrs X 2)	125°C Tcase 320 hrs (160 hrs X 2)	125°C Tcase 320 hrs (160 hrs X 2)	125°C Tcase 320 hrs (160 hrs X 2)	125°C Tcase 320 hrs (160 hrs X 2)	125°C Tcase 320 hrs (160 hrs X 2)	125°C Tcase 320 hrs (160 hrs X 2)	125°C Tcase 320 hrs (160 hrs X 2)
PDA			PDA%	Same	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Electrical Test	—	—	Functional Test	MDI ATP	25°C testing with data	-55°C, 25°C, 85°C testing with data	-55°C, 25°C, 125°C testing with data	25°C testing with data	-55°C, 25°C, 85°C testing with data	-55°C, 25°C, 125°C testing with data	-55°C, 25°C, 85°C testing with data	-55°C, 25°C, 85°C testing with data	-55°C, 25°C, 125°C testing with data	-55°C, 25°C, 125°C testing with data	-55°C, 25°C, 125°C testing with data	-55°C, 25°C, 125°C testing with data	-55°C, 25°C, 125°C testing with data	-55°C, 25°C, 125°C testing with data
Fine Leak	F 1014	A1 or A2	Dependent on Vacant Interior Cavity of Hybrid	Same	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed
Gross Leak	F 1014	C1	—	Same	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed
Fine Leak	K 1014	B1	Radioisotope	Same	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*
Gross Leak	K 1014	B2	Radioisotope	Same	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*
Radiography	F 2012	—	Y Direction	Same	Not Performed	Not Performed	Not Performed	Not Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed
Radiography	K 2012	—	X,Y,Z Directions	Same	Not Performed	Not Performed	Not Performed	Not Performed	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*	Available*
External Visual	K 2009	—	—	Same	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed	Performed

Note 1 — Higher acceleration test levels available: Consult factory.
 Available* May be performed if indicated as line item on PO by an accredited test laboratory
 Available May be performed if indicated as line item on PO by MDI

