

Linear Flash Card (PC Card Style)

Specifications and Drawings

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16MB Linear Flash PC Card

General Descriptions

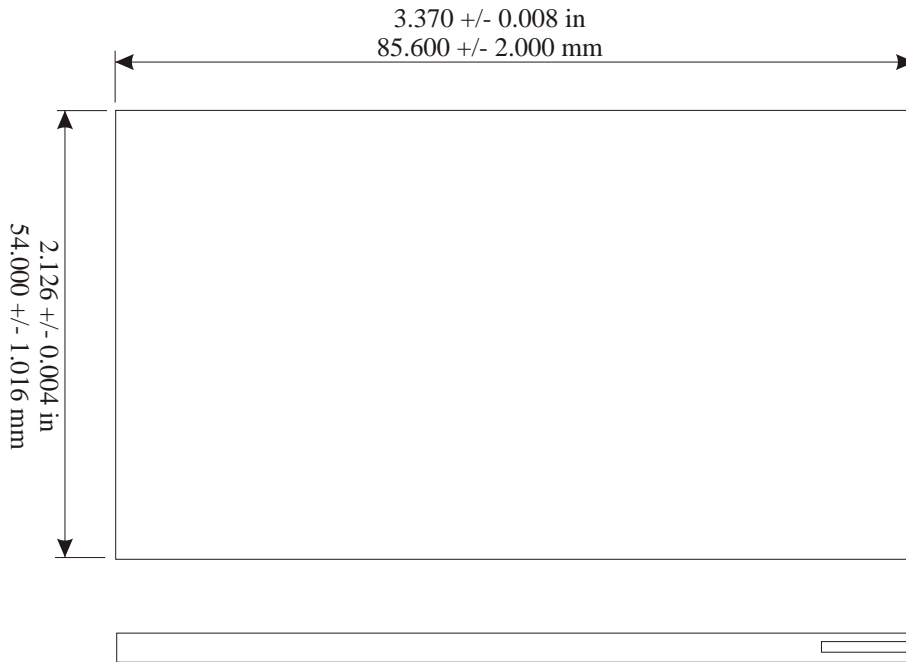
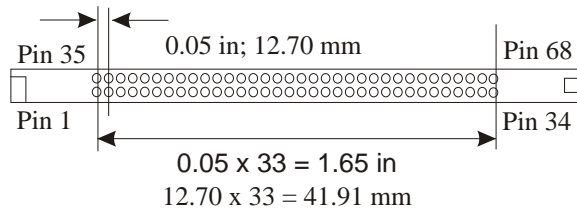
The GalaxyStor GLFAI16D, which panel design is GalaxyStor standard Design , is a 16MB Flash Memory PC Card and conforms to PC Card Standard Type 1 mechanical specifications. This card uses AMD uniform sector FLASH memory chips part number: AM29F017D.

Features

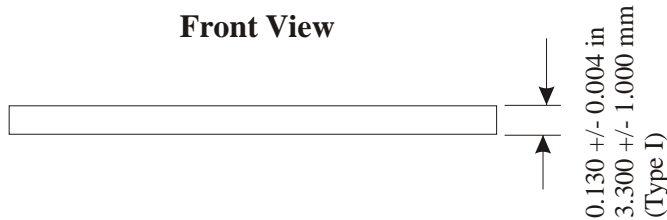
- Type 16MB Flash Memory Card
(Conforms to PC Card Standard Type 1 mechanical specifications)
- Memory Capacity
Main Memory 8M words x 16bits (16M bytes)
- Supply Voltage 5.0V \pm 5%
- Erase Unit 64K word Blocks
- Access Time (Typical) 100ns
- Program/Erase Cycles 1,000,000 cycles per Block
- Interface Parallel I/O Interface
- External Dimensions 54.0 x 85.6 x 3.3 mm
- Type of Connector Conforms to PC Card Standard Card Use Connector
(Card connector: ICM-C68S-TS13-6095 JST
Or ICM-C68S-TS13-5035A JST or JC20-J68S-NB3 JAE)
- Average Weight 30g
- Operating Temp. Range 0 to 70 °C
- Storage Temp. Range -65 to 80°C
- External Appearance External appearance shall be free of any dirt, scratches and abnormalities that could adversely affect sales.
- Manufacturer's Code The manufacturer's code shall be printed on the memory card directly or on the seal which is then attached to the memory card.
- Brand Name The user's brand name will be used.
- Not designed for rated radiation hardened.

PACKAGE DIMENSIONS AND PIN LOCATIONS

Length	3.370±0.008 in (85.600±2.000 mm)
Width	2.126±0.004 in (54.000±1.000 mm)
Thickness	0.130±.004 in (3.300±1.000 mm)
(including Label Area)	(PC Card Type I)



Front View



PIN ASSIGNMENTS

Pin	Signal	I/O	Function	Active	Pin	Signal	I/O	Function	Active
1	GND		Ground		35	GND		Ground	
2	D ₃	I/O	Data Bit 3		36	CD ₁ #	O	Card Detect 1	LOW
3	D ₄	I/O	Data Bit 4		37	D ₁₁	I/O	Data Bit 11	
4	D ₅	I/O	Data Bit 5		38	D ₁₂	I/O	Data Bit 12	
5	D ₆	I/O	Data Bit 6		39	D ₁₃	I/O	Data Bit 13	
6	D ₇	I/O	Data Bit 7		40	D ₁₄	I/O	Data Bit 14	
7	CE ₁ #	I	Card Enable 1	LOW	41	D ₁₅	I/O	Data Bit 15	
8	A ₁₀	I	Address Bit 10		42	CE ₂ #	I	Card Enable 2	LOW
9	OE#	I	Output Enable	LOW	43	VS ₁ #	O	Voltage Sense 1	N.C.
10	A ₁₁	I	Address Bit 11		44	RFU		Reserved	
11	A ₉	I	Address Bit 9		45	RFU		Reserved	
12	A ₈	I	Address Bit 8		46	A ₁₇	I	Address Bit 17	
13	A ₁₃	I	Address Bit 13		47	A ₁₈	I	Address Bit 18	
14	A ₁₄	I	Address Bit 14		48	A ₁₉	I	Address Bit 19	
15	WE#	I	Write Enable	LOW	49	A ₂₀	I	Address Bit 20	
16	RDY/BSY#	O	Ready/Busy	LOW	50	A ₂₁	I	Address Bit 21	
17	V _{CC}		Supply Voltage		51	V _{CC}	I/O	Supply Voltage	
18	V _{PP1}		Supply Voltage	N.C.	52	V _{PP2}	I/O	Supply Voltage	N.C.
19	A ₁₆	I	Address Bit 16		53	A ₂₂	I	Address Bit 22	
20	A ₁₅	I	Address Bit 15		54	A ₂₃	I	Address Bit 23	
21	A ₁₂	I	Address Bit 12		55	A ₂₄	I	Address Bit 24	N.C.
22	A ₇	I	Address Bit 7		56	A ₂₅	I	Address Bit 25	N.C.
23	A ₆	I	Address Bit 6		57	VS ₂ #	O	Voltage Sense 2	N.C.
24	A ₅	I	Address Bit 5		58	RESET	I	Reset	HIGH
25	A ₄	I	Address Bit 4		59	WAIT#	O	Extend Bus cycle	LOW
26	A ₃	I	Address Bit 3		60	RFU		Reserved	
27	A ₂	I	Address Bit 2		61	REG#	I	Attribute Memory Select	N.C.
28	A ₁	I	Address Bit 1		62	BVD ₂	O	Battery Voltage Detect 2	
29	A ₀	I	Address Bit 0	N.C.	63	BVD ₁	O	Battery Voltage Detect 1	
30	D ₀	I/O	Data Bit 0		64	D ₈	I/O	Data Bit 8	
31	D ₁	I/O	Data Bit 1		65	D ₉	I/O	Data Bit 9	
32	D ₂	I/O	Data Bit 2		66	D ₁₀	I/O	Data Bit 10	
33	WP	O	Write Protect	HIGH	67	CD ₂ #	O	Card Detect 2	LOW
34	GND		Ground		68	GND		Ground	

SIGNAL DESCRIPTIONS

Symbol	Type	Name	Description
A0 – A25	Input	Address inputs	Address A0 through A25 are address bus lines which enable direct addressing of up to 64 MB of memory on the card. Signal A0 is not decoded since the card is x16 only. The system should NOT try to access memory beyond the card's density.
D0 – D15	Input/Output	Data Input/Output	Address D0 through D15 constitute the bi-directional data bus. D15 is the most significant bit.
CE1#, CE2#	Input	Card Enable 1 & 2	CE1# enables EVEN byte accesses on D0-7, CE2# enables ODD byte Accesses on D8-15. Cannot access ODD Bytes on D0-7.
OE#	Input	Output enable	Active low signal gating read data from the memory card.
WE#	Input	Write Enable	Active low signal gating write data to the memory card
RDY/BSY#	Output	Ready/Busy Output	Indicates status of internally timed erase or write activities. A high output indicates the memory card is ready to accept accesses.
CD1#, CD2#	Output	Card Detect 1 & 2	These signals provide for card insertion detection. The signals are connected to ground internally on the memory card and will be forced low when a card is placed in the socket. The host socket interface circuitry shall supply 10K or larger pull-up resistors on these signal pins.
WP	Output	Write Protect	This signal is pulled low for PC Card Standard compatibility. This flash memory card has no WP signal function.
VPP1, VPP2	N.C.	Write/Erase Power Supply 1 & 2	These Power signals are not connected for the single supply.
VCC		Card Power Supply	5.0V DC for all internal circuitry.
GND		Ground	Ground for all internal circuitry
REG#	N.C.	Register Select	The memory card has no separate attribute memory. REG# is not connected on the card.
RESET	Input	Reset	Active high signal for placing card in Power-On Default State. RESET can be used as a POWER-DOWN signal for the memory array
WAIT#	Output	Wait	(Extended Bus Cycle) This signal is pulled high for compatibility.
BVD1, BVD2	Output	Battery Voltage Detect 1 & 2	These signals are pulled high to maintain SRAM card compatibility.
VS1#, VS2#	Output	Voltage Sense 1 & 2	Notifies the host socket of the card's VCC requirements. VS1# and VS2# are OPEN to indicate a 5.0V, 16-bit card has been inserted.
RFU			RESERVED FOR FUTURE USE
N.C.			NO INTERNAL CONNECTION TO CARD (Pin may be driven or left floating)NO INTERNAL CONNECTION TO CARD (Pin may be driven or left floating)

ABSOLUTE MAXIMUM RATINGS

Description	Rating	Unit	Notes
Operating Temperature	0 to +70	°C	
Storage Temperature	-65 to +125	°C	
Voltage on any pin with Respect to VSS	-0.6 to +VCC+0.6	V	
Max. Operating Voltage	7.0	V	

* Stressing the device beyond the “Absolute Maximum Rating” may cause permanent damage. These are stress ratings only. Operation beyond the “Operating Conditions” is not recommended and extended exposure beyond the “Operating Conditions” may affect device reliability.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit	Test Condition
TA	Operating Temperature	0	+70	°C	Ambient Temperature
VCC	VCC Supply Voltage	4.75	5.25	V	

CAPACITANCE (Ta=25°C, f=1MHz)

Symbol	Parameter	Typ	Max	Unit	Test Condition
CIN	Input Capacitance	48	64	pF	VIN = 0.0V
COUT	Output Capacitance	32	48	PF	VOUT = 0.0V

LATCHUP CHARACTERISTICS

Input Voltage with respect to VSS on I/O pins	-1.0V	VCC +1.0V
VCC Current	-100mA	+100mA

* Includes all pins except VCC. Test Condition: VCC = 5.0 Volt, one pin at a time.

DATA RETENTION

Parameter	Test Condition	Min	Unit
Minimum Pattern Data Retention Time	150°C	10	Years
	125°C	20	Years

Specification Changes

- Specifications may be changed upon discussion and agreement between both parties.

Other Precautions

- Permanent damage occurs if the memory card is stressed beyond Absolute Maximum Ratings. Operation beyond the Recommended Operating Conditions is not recommended and extended exposure beyond the Recommended Operating Conditions may affect device reliability.
- Avoid allowing the memory card connectors to come in contact with metals and avoid touching the connectors, as the internal circuits can be damaged by static electricity.
- Avoid storing in direct sunlight, high temperatures (do not place near heaters or radiators), high Humidity and dusty areas.
- Avoid subjecting the memory card to strong physical abuse. Dropping, bending, smashing or Throwing the card can result in loss of function.
- When the memory card is not being used, return it to its protective case.
- Do not allow the memory card to come in contact with fire.

Dimensional Drawing for Type I PC Card

