

# ON SEMICONDUCTOR Flash Memory and NVRAM

ON Semiconductor®



Memory

Catalyst

The CAT28F001 is a high speed 128K X 8 bit electrically erasable and reprogrammable Flash memory ideally suited for applications requiring in-system or after sale code updates.

The CAT28F001 has a blocked architecture with one 8 KB Boot Block, two 4 KB Parameter Blocks and one 112 KB Main Block. The Boot Block section can be at the top or bottom of the memory map and includes a reprogramming write lock out feature to guarantee data integrity. It is designed to contain secure code which will bring up the system minimally and download code to other locations of CAT28F001.

The CAT28F001 is designed with a signature mode which allows the user to identify the IC manufacturer and device type. The CAT28F001 is also designed with on-Chip Address Latches, Data Latches, Programming and Erase Algorithms.

The CAT28F001 is manufactured using Catalyst's advanced CMOS floating gate technology. It is designed to endure 100,000 program/erase cycles and has a data retention of 10 years. The device is available in JEDEC approved 32-pin plastic DIP, PLCC or TSOP packages.

## FEATURES: CAT28F001 SERIES

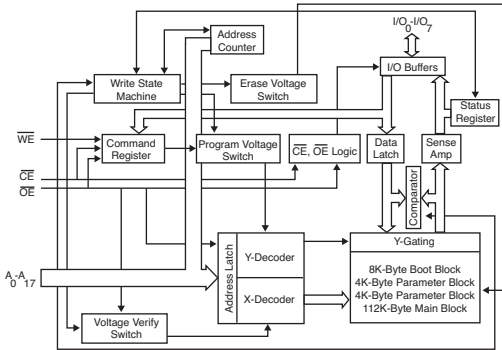
### Boot Block Flash Memory

- Fast Read Access Time: 70/90/120/150 ns
- On-Chip Address and Data Latches
- Blocked Architecture:
  - One 8 KB Boot Block w/ Lock Out Top or Bottom Locations
  - Two 4 KB Parameter Blocks
  - One 112 KB Main Block
- Low Power CMOS Operation
- 12.0V  $\pm$  5% Programming and Erase Voltage
- Automated Program & Erase Algorithms
- High Speed Programming
- Commercial, Industrial and Automotive
- Temperature Ranges
- Deep Powerdown Mode:
  - 0.05 mA ICC Typical
  - 0.8 mA IPP Typical

- Hardware Data Protection
- Electronic Signature
- 100,000 Program/Erase Cycles and 10 Year Data Retention
- JEDEC Standard Pinouts:
  - 32 pin DIP
  - 32 pin PLCC
  - 32 pin TSOP
- Reset/Deep Power Down Mode



RoHS Compliant



## Surface Mount Device

For quantities of 500 and up, call for quote.

MOUSER STOCK NO.		Package	Density	Organization	Temp. Range (°C)	Price Each			
Mfr.	Mfr. Part No.					1	25	100	250
<b>90 ns Boot Block - 5/12 Volt</b>									
	698—CAT28F001L-90B	PDIP-32	1M	128 x 8	0 to 70	8.84	7.06	6.63	6.19
◆	698—CAT28F001G-90B	PLCC-32	1M	128 x 8	0 to 70	8.09	6.47	6.07	5.66
◆	698—CAT28F001GI-90T	PLCC-32	1M	128 x 8	-40 to +85	7.04	5.63	5.28	4.92
<b>120 ns Boot Block - 5/12 Volt</b>									
	698—CAT28F001L-12B	PDIP-32	1M	128 x 8	0 to 70	8.84	7.07	6.63	6.18
	698—CAT28F001L-12B	PDIP-32	1M	128 x 8	-40 to +85	8.84	7.06	6.63	6.19
	698—CAT28F001L-12T	PDIP-32	1M	128 x 8	0 to 70	8.84	7.07	6.63	6.18
	698—CAT28F001L-12T	PDIP-32	1M	128 x 8	-40 to +85	8.84	7.06	6.63	6.19
◆	698—CAT28F001G-12B	PLCC-32	1M	128 x 8	0 to 70	8.09	6.47	6.07	5.66
◆	698—CAT28F001GI-12B	PLCC-32	1M	128 x 8	-40 to +85	8.09	6.47	6.07	5.66
◆	698—CAT28F001G-12T	PLCC-32	1M	128 x 8	0 to 70	7.04	5.63	5.28	4.92
◆	698—CAT28F001GI-12T	PLCC-32	1M	128 x 8	-40 to +85	7.04	5.63	5.28	4.93
◆	698—CAT28F001HI-12T	TSOP-32	1M	128 x 8	-40 to +85	8.04	6.42	6.03	5.63

## CATALYST NVRAM

### Features:

- Single 5V supply
- Infinite EEPROM to RAM recall
- CMOS and TTL Compatible I/O
- Power up/down protection
- 10 year data retention
- 100,000 Program/Erase cycles (EEPROM)
- Commercial, industrial, and automotive temperature ratings

- JEDEC Standard Pinouts: 18-pin DIP and 16-pin SOIC (CAT22C10)
- Low CMOS Power Consumption: Active - 40mA max., Standby: 30µA max.
- Fast RAM access times (CAT22C10): 200ns, 300ns



RoHS Compliant

MOUSER STOCK NO.		Case Type	Density	Organization	Access Time (ns)	Temperature Range (°C)	Operating Voltage (V)	Price Each			
Mfr.	Mfr. Part No.							1	25	100	250
	698—CAT22C10LI-30	PDIP-18	256	64 x 8	300	-40 to +85	4.5 to 5.5	3.67	2.93	2.75	2.57
	698—CAT24C44LI	PDIP-8	1K	128 x 8	-	-40 to +85	4.5 to 5.5	2.31	1.85	1.73	1.61

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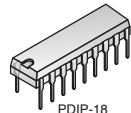
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MOUSER STOCK NO.		Package	Density	Organization	Temperature Range (°C)	Price Each			
Mfr.	Mfr. Part No.					1	25	100	250
<b>90 ns Bulk Erase - 5/12 Volt</b>									
	698—CAT28F512L-90	PDIP-32	512K	64K x 8	0 to 70	9.44	7.55	7.08	6.60
	698—CAT28F512L-90	PDIP-32	512K	64K x 8	-40 to +85	9.44	7.55	7.08	6.60
	698—CAT28F512G-90	PLCC-32	512K	64K x 8	0 to 70	8.78	7.02	6.59	6.15
◆	698—CAT28F512GI-90	PLCC-32	512K	64K x 8	-40 to +85	8.78	7.02	6.59	6.15
	698—CAT28F010L-90	PDIP-32	1M	128K x 8	0 to 70	9.00	7.20	6.75	6.30
	698—CAT28F010L-90	PDIP-32	1M	128K x 8	-40 to +85	9.00	7.20	6.75	6.30
◆	698—CAT28F010G-90	PLCC-32	1M	128K x 8	0 to 70	8.28	6.62	6.21	5.79
◆	698—CAT28F010GI-90	PLCC-32	1M	128K x 8	-40 to +85	8.28	6.62	6.21	5.79
◆	698—CAT28F010H-90	TSOP-32	1M	128K x 8	0 to 70	9.43	7.54	7.07	6.60
◆	698—CAT28F010HI-90	TSOP-32	1M	128K x 8	-40 to +85	9.43	7.54	7.07	6.60
	698—CAT28F020L-90	PDIP-32	2M	256K x 8	0 to 70	12.38	9.90	9.29	8.66
	698—CAT28F020L-90	PDIP-32	2M	256K x 8	-40 to +85	12.38	9.90	9.29	8.66
◆	698—CAT28F020G-90	PLCC-32	2M	256K x 8	0 to 70	12.16	9.73	9.12	8.51
◆	698—CAT28F020GI-90	PLCC-32	2M	256K x 8	-40 to +85	12.16	9.73	9.12	8.51
<b>120 ns Bulk Erase - 5/12 Volt</b>									
	698—CAT28F512L-12	PDIP-32	512K	64K x 8	0 to 70	7.44	5.95	5.58	5.20
	698—CAT28F512L-12	PDIP-32	512K	64K x 8	-40 to +85	7.44	5.95	5.58	5.20
◆	698—CAT28F512G-12	PLCC-32	512K	64K x 8	0 to 70	5.63	4.50	4.23	3.94
◆	698—CAT28F512GI-12	PLCC-32	512K	64K x 8	-40 to +85	6.48	5.18	4.86	4.54
◆	698—CAT28F512H-12	TSOP-32	512K	64K x 8	0 to 70	7.63	6.10	5.73	5.34
	698—CAT28F010L-12	PDIP-32	1M	128K x 8	0 to 70	8.00	6.40	6.00	5.60
	698—CAT28F010L-12	PDIP-32	1M	128K x 8	-40 to +85	8.00	6.40	6.00	5.60
◆	698—CAT28F010G-12	PLCC-32	1M	128K x 8	0 to 70	7.13	5.70	5.35	4.99
◆	698—CAT28F010GI-12	PLCC-32	1M	128K x 8	-40 to +85	7.13	5.70	5.34	4.99
◆	698—CAT28F010H-12	TSOP-32	1M	128K x 8	0 to 70	8.28	6.62	6.21	5.79
◆	698—CAT28F010HI-12	TSOP-32	1M	128K x 8	-40 to +85	8.28	6.62	6.21	5.79
◆	698—CAT28F010HR-12	TSOP-32	1M	128K x 8	0 to 70	8.28	6.62	6.21	5.79
	698—CAT28F020L-12	PDIP-32	2M	256K x 8	0 to 70	10.38	8.30	7.79	7.26
	698—CAT28F020L-12	PDIP-32	2M	256K x 8	-40 to +85	10.38	8.29	7.79	7.27
◆	698—CAT28F020G-12	PLCC-32	2M	256K x 8	0 to 70	9.86	7.89	7.40	6.90
◆	698—CAT28F020GI-12	PLCC-32	2M	256K x 8	-40 to +85	9.86	7.88	7.40	6.91
◆	698—CAT28F020H-12	TSOP-32	2M	256K x 8	0 to 70	11.01	8.80	8.26	7.71
◆	698—CAT28F020HI-12	TSOP-32	2M	256K x 8	-40 to +85	11.01	8.81	8.26	7.70

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