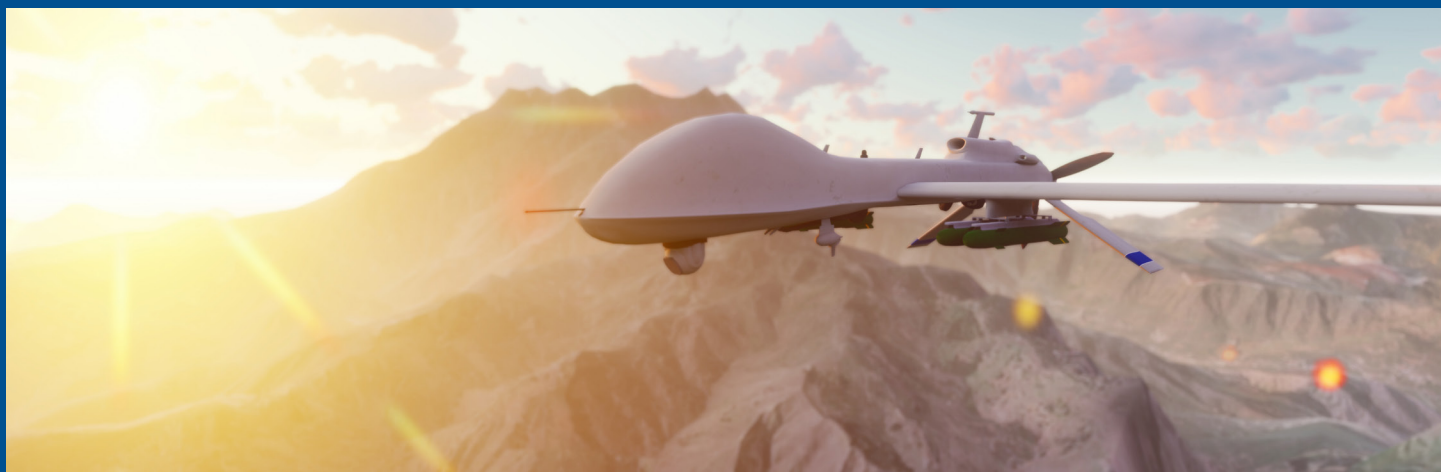


High-Reliability Integrated Circuits



Introduction



Microchip has long been a leading supplier of high-reliability space and military discrete semiconductor components and modules. Microchip's Power Management Integrated Circuits group (PMIC) supplies the Class B integrated circuit products and is certified by the Defense Logistics Agency (DLA) (DLA Land and Maritime) and has been placed on the Qualified Manufacturer's List (QML). Class B QML devices are supplied in conformance with the following Military Specifications:

- MIL-M-38510
- Standard Microcircuit Drawings (SMD)

We develop analog mixed-signal integrated circuits primarily for the space, aerospace and defense markets. We are focused on markets and products operating in harsh environments and requiring rigorous testing and long product availability. Our group is built upon developed expertise in sensor interface and driver products

MIL-STD-883, Compliant Devices (/883B)

Level "S" wafer processing, assembly and screening is performed in accordance with MIL-STD-883, Method 5004, Table 1. Level "S" processing is specified and facilitated by individual customer requirements through Source Control Drawings (SCD).

As an option where appropriate, Microchip also offers a broad range of commercial and industrial grade integrated circuits that include DC-DC controllers and voltage regulators, low drop-out linear voltage regulators and integrated circuit controllers.

Certifications for PMIC Process and Products

- MIL-PRF-38535QML

Microchip/MMT Hermetic Packaging Capability

- MMT Founded in 1989, a Microchip company in 2011
- 22,000 sq feet dedicated to hermetic assembly operations
- 8,500 sq. feet of Class 1K
- 14,000 sq. feet of test/scan space
- QML-Q and QML-V Certified
- MIL-PRF-38535, -38534, -19500
- DLA certified Reliability Lab to MIL-STD-883, MIL-STD -750 and MIL-M-38510JAN QCI Group Test
- Turn-key capabilities including:
 - Back grinding, probe test
 - Die attach and wire bonding
 - Hermeticity testing
 - Thermal cycling
- PIND
- Burn-in
- Full hermetic product line including:
 - CDIP, CQFP, CERQUAD, Flip-chip BGA
 - TO-3, TO-5, TI-39 up to TO-258
- Hybrid FlatPack
- Hi-Rel plastic
- PDIP, SOIC, TSSOP, PLCC
- TO-257



Product Selection Guide

Linear Circuits

Interface

SG2000	Driver Array Series, 7 NPN's 50 to 95V, 500 to 600 ma
SG2800	Driver Array Series, 8 NPN's 50 to 95V, 500 to 600 ma

MOSFET Drivers

SG1626	Dual High Speed MOSFET Driver
SG1644	Inverting, Dual High Speed MOSFET Driver

Operational Amplifier

SG143	Op Amp, 4V to 40V Supply
SG1436	Op Amp, High Voltage
SG1536	Op Amp, Low Offset, High Voltage

Voltage Reference

SG1503	Precision Reference, 2.5V
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Supervisory

SG1543	Power Supply Supervisory Circuit
SG1544	Power Supply Supervisory Circuit Low Voltage Option
SG1548	Quad Power Fault Monitor
SG1549	Current Sense Latch



Power Supply Circuits

Pulse Width Modulator IC Controllers

SG1524	Voltage Mode PWM
SG1524B	Voltage Mode PWM, $\pm 1\%$ Ref.
SG1525A	Voltage Mode PWM, Dual Sink /Source Outputs
SG1526B	Voltage Mode PWM, 500 Khz

Voltage Mode PWM, Inverted

SG1731	PWM Motor Controller SG1825C Current Mode PWM, 1.5Mhz
SG1842	Current Mode PWM, off-line, 16V UVLO
SG1843	Current Mode PWM, off-line, 8V UVLO
SG1844	Current Mode PWM, off-line, 16V UVLO, Max Duty Cycle 100%
SG1845	Current Mode PWM, off-line, 16V UVLO, Max Duty Cycle 50%
SG1846	Current Mode PWM, dual sink/source outputs, 8–40V

Linear Voltage Regulators

SG109	Positive 5.0V Fixed, 1A
SG117	Positive Adjustable, 1.5A
SG117A	Positive Adjustable, $\pm 1\%$ Tol., 1.5A
SG117HV	Positive Adjustable $\pm 1\%$ Tol
SGR117A	Rad Hard Positive, Adjustable, 1.5A
SG723	Precision Regulator/Controller, Adj.
SG1532	Positive or Negative Output Precision Regulator/Controller, Adj. Positive or Negative Output
SG78xx	Positive: 5, 6, 8, 12, 15, 18, 20, 24V Fixed
SG78xxA	Positive: 5, 6, 8, 12, 15, 18, 20, 24V Fixed
SG79xx	Negative 5, 5.2, 8, 12, 15, 18, 20, 24V Fixed
SG79xxA	Negative 5, 5.2, 8, 12, 15, 18, 20, 24V Fixed

Product Listing Sorted by SMD and JAN Number

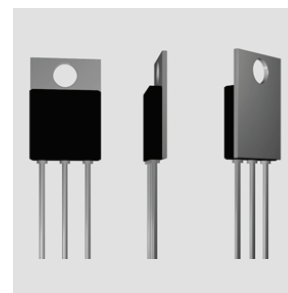
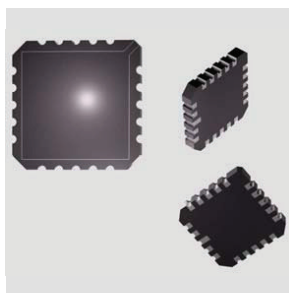
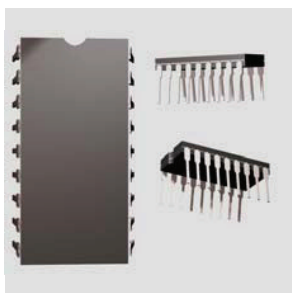
Microchip Part Number (/883B)	Standard Microcircuit Drawing (SMD)	MIL-M-38510/(JAN)
SG7808AG	5962-8962801TA	
SG7808AIG	5962-8962801UA	
SG7808AT	5962-8962801XA	
SG7808AK	5962-8962801YA	
SG2821L	5962-89684012A	
SG2821J	5962-8968401VA	
SG2823L	5962-89685012A	
SG2823J	5962-8968501VA	
SG2824J	5962-8968601VA	
SG2023J	5962-8987601EA	
SG1548J	5962-8987801EA	
SG7818AIG	5962-8991501UA	
SG7818AT	5962-8991501XA	
SG7818AK	5962-8991501YA	
SG7820AT	5962-9152301MXA	
SG1644L	5962-9165301M2A	
SG1644J	5962-9165301MCA	
SG1644T	5962-9165301MGA	
SG1644Y	5962-9165301MPA	
SG1731J	5962-9669901MEA	
SG117L	77034012A	
SG117G	7703401TA	
SG117IG	7703401UA	
SG117T	7703401XA	M38510/11703BXA
SG117K	7703401YA	M38510/11704BYA
SG137L	77034032A	
SG137T	7703403XA	
SG117AL	77034052A	

Microchip Part Number (/883B)	Standard Microcircuit Drawing (SMD)	MIL-M-38510/ (JAN)
SG117AIG	7703405UA	
SG117AT	7703405XA	
SG117AK	7703405YA	
SG137AL	77034062A	
SG137AT	7703406XA	
SG143Y	7800303PA	
SG143T	7800303XA	
SG1536Y	7800304PA	
SG1536T	7800304XA	
SG1524J	7802801EA	M38510/12601BEA
SG1526BL	85515012A	
SG1526BJ	8551501VA	M38510/12603BVA
SG723J		M38510/10201BCA
SG723F		M38510/10201BHA
SG723T		M38510/10201BIA
SG109T		M38510/10701BXA
SG7815T		M38510/10704BXA
SG7805T		M38510/10702BXA
SG7805K		M38510/10706BYA
SG7812T		M38510/10703BXA
SG7812K		M38510/10707BYA
SG7815K		M38510/10708BYA
SG7905T		M38510/11501BXA
SG7912T		M38510/11502BXA
SG7915T		M38510/11503BXA
SG7905K		M38510/11505BYA
SG7912K		M38510/11506BYA
SG7915K		M38510/11507BYA
SG2003J		M38510/14103BEA
SG2004J		M38510/14104BEA
SG2803J		M38510/14108BVA
SG2804J		M38510/14109BVA

Product Listing Sorted by SMD and JAN Number

Microchip Part Number (/883B)	Standard Microcircuit Drawing (SMD)	MIL-M-38510/ (JAN)
SG2803L	5962-86058012A	
SG2803J	5962-8605801VA	M38510/14108BVA
SG1842L	5962-86704012A	
SG1842J	5962-8670401CA	
SG1842F	5962-8670401HA	
SG1842Y	5962-8670401PA	
SG1843L	5962-86704022A	
SG1843J	5962-8670402CA	
SG1843F	5962-8670402HA	
SG1843Y	5962-8670402PA	
SG1844L	5962-86704032A	
SG1844J	5962-8670403CA	
SG1844F	5962-8670403HA	
SG1844Y	5962-8670403PA	
SG1845L	5962-86704042A	
SG1845J	5962-8670404CA	
SG1845F	5962-8670404HA	
SG1845Y	5962-8670404PA	
SG1846L	5962-86806012A	
SG1846J	5962-8680601EA	
SG1846F	5962-8680601FA	
SG1549Y	5962-8684901PA	
SG1503Y	5962-8686101PA	
SG1503T	5962-8686101YA	
SG1524BJ	5962-8764501EA	
SG1825CL	5962-87681012A	
SG1825CJ	5962-8768101EA	
SG1543L	5962-87740012A	
SG1543J	5962-8774001EA	
SG1544J	5962-8774002VA	
SG1532L	5962-87770012A	
SG1532J	5962-8777001CA	
SG1532T	5962-8777001IA	
SG7812AL	5962-87776012A	
SG7812AG	5962-8777601TA	
SG7812AIG	5962-8777601UA	
SG7812AT	5962-8777601XA	
SG7812AK	5962-8777601YA	
SG7805AL	5962-87782012A	
SG7805AG	5962-8778201TA	
SG7805AIG	5962-8778201UA	

Microchip Part Number (/883B)	Standard Microcircuit Drawing (SMD)	MIL-M-38510/ (JAN)
SG7805AT	5962-8778201XA	
SG7805AK	5962-8778201YA	
SG7815AL	5962-88553012A	
SG7815AG	5962-8855301TA	
SG7815AIG	5962-8855301UA	
SG7815AT	5962-8855301XA	
SG7815AK	5962-8855301YA	
SG7824AT	5962-8855401XA	
SG7824AK	5962-8855401YA	
SG1626J	5962-8871601CA	
SG1626T	5962-8871601GA	
SG1626Y	5962-8871601PA	
SG7905AL	5962-88746012A	
SG7905AG	5962-8874601TA	
SG7905AIG	5962-8874601UA	
SG7905AT	5962-8874601XA	
SG7905AK	5962-8874601YA	
SG7912AL	5962-88747012A	
SG7912AG	5962-8874701TA	
SG7912AIG	5962-8874701UA	
SG7912AT	5962-8874701XA	
SG7912AK	5962-8874701YA	
SG7915AL	5962-88748012A	
SG7915AG	5962-8874801TA	
SG7915AIG	5962-8874801UA	
SG7915AT	5962-8874801XA	
SG7915AK	5962-8874801YA	
SG1525AJ	5962-8951101EA	M38510/12602BEA
SG1525AF	5962-8951101FA	
SG1527AJ	5962-8951102EA	M38510/12604BVA
SG7806AL	5962-89626012A	
SG7806AT	5962-8962601XA	
SG7806AK	5962-8962601YA	



Available Package Types

Ceramic Dual-In-Line (DIP)

- Microchip designator "Y": 8-pin
- Microchip designator "J": 14-, 16- and 18-pin

Ceramic Flat Pack (Cerpac)

- Microchip designator "F": 10-, 14-, 16-, 20- and 24-pin

Ceramic Leadless Chip Carrier (LCC)

- Microchip designator "L": 20-pin

Metal Cans

- Low current (500 ma)
 - TO-39, Microchip designator "T": 3-pin
 - TO-99, Microchip designator "T": 8-pin
 - TO-100, Microchip designator "T": 10-pin
- High current (>1.5A)
 - TO-3, Microchip designator "K": 3-pin

Metal Case with mounting tab

- TO-257: 3-pin
- Insulated case, Microchip designator "IG"
- Non-insulated case, Microchip designator "G"

Screening Standards

Customer Generated Source Control Drawings (SCD)

Microchip fully reviews the customer requirements, both the technical and processing, as specified in the SCD and purchase order. A special processing document (SPS) is generated by Microchip to assure that the requirements of the SCD are met.

Microchip Standard Space Level Program

Microchip's Standard Space Level processing is based on the current issue of MIL-PRF-38535 QML level "V" assembled and screened to either Class Level B or Class Level S (Space Level) as defined by MIL-STD-883 Method 5004 with Quality Conformance Inspection performed in accordance with MIL-STD-883 Method 5005.

Microchip Custom Level "S" Flow

The standard Level "S" flow can be modified by adding or deleting screening procedures or process controls to fit the customer's needs. The negotiated processing requirements are documented in an SPS traveler to assure compliance to the purchase order requirements.

Other Offerings

Customer or Government Source Inspection

On-site inspections are available at any in the processing or acceptance testing.

Microchip/MMT Hermetic Packaging Capability



SMART | CONNECTED | SECURE

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