



FSA9280A / FSA9288A

支持自动选择与附件检测的USB端口多媒体开关

特征

信号	音频, USB, UART, USB 充电
开关机理	根据有效中断的自动开关
附件检测	双耳式耳机(头戴式耳机/MIC/远程) USB数据端口 UART串行链路 USB充电器(车载套件, CDP, DCP) 出厂模式 TTY开关
USB	FS and HS 2.0兼容
USB充电	电池充电1.1兼容集成功率FET 过压保护(OVP) 28V 货流保护(OCP) 1.5A FSA9280A – 6.8V OVP FSA9288A – 8.0V OVP
音频	左, 右, MIC, TTY
V _{BAT}	3 至 4.4V
可编程性	I ² C
ESD	15kV IEC 61000-4-2空气间隙
封装	20-Lead UMLP (3 x 4 x 0.55mm, 0.5mm 脚距)
订货信息	FSA9280AUMX FSA9288AUMX

说明

FSA9280A 和 FSA9288A 为高性能多媒体开关，支持 USB 端口，允许自动开关和附件检测。这些开关允许共享一个公共的 USB 端口，传输音频、USB 数据/充电，具有出厂可编程性。另外，FSA9280A / FSA9288A 集成了附件检测，例如头戴式耳机、双耳式耳机(MIC / 按钮)、汽车充电器、USB 充电器以及 UART 数据电缆，可以采用同一 USB 连接器。FSA9280A / FSA9288A 经过编程，可以手动开关或基于实测附件自动开关数据路径。FSA9280A / FSA9288A 包括一个集成了 28V 过压和 1.5A 过流保护的 FET。

应用场景

- 移动电话和便携媒体播放器

相关资料

- [FSA9280A / FSA9288A 评估板](#)
- [FEB - 评估板用户指南](#)
- [有关样品、问题或电路板申请，请联系 \[analogswitch@fairchildsemi.com\]\(mailto:analogswitch@fairchildsemi.com\)](mailto:analogswitch@fairchildsemi.com)

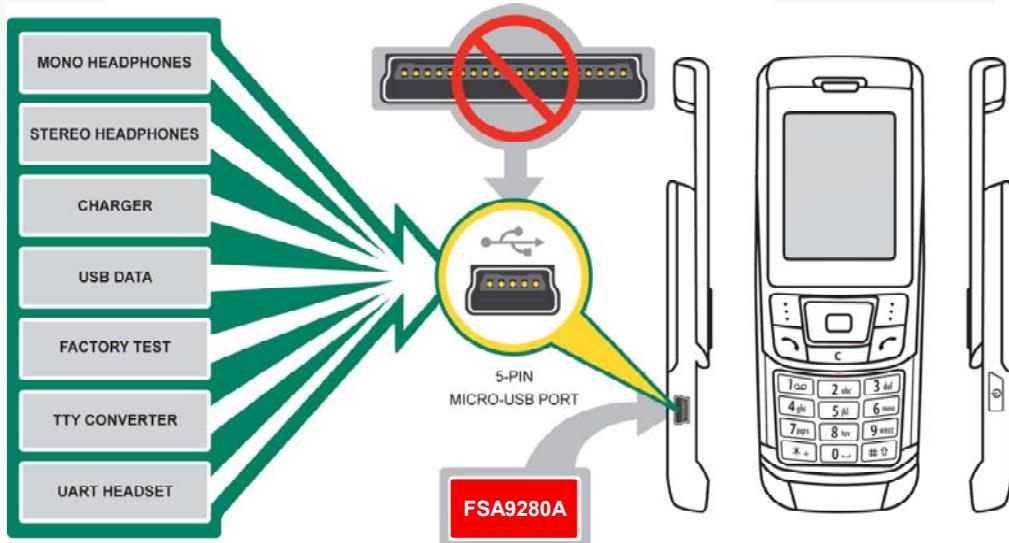


Figure 1. 典型应用

目录

特征	1
说明	1
应用场合	1
相关资料	1
目录	2
管脚配置	4
管脚说明	5
1. 功能	6
1.1. 功能概述	6
2. 上电与复位	7
2.1. 复位	7
2.1.1. 硬件复位	7
2.1.2. 软件复位	7
3. I ² C	8
4. 配置	9
5. 检测	9
5.1. 端口检测	11
5.2. 音频附件检测	14
5.3. OCP与OVP检测	15
6. 处理器通信	15
6.1. 中断	15
7. 开关配置	15
7.1. 手动开关	16
8. 有效信号性能	17
8.1. USB数据	17
8.2. FS USB	17
8.3. 音频	17
9. 电气规范	18
9.1. 绝对最大额定值	18
9.2. 推荐的工作条件	18
9.3. 开关路径直流电气特性	19
9.4. 容值	20
9.5. 开关路径交流电气特性	20
9.6. I ² C TM 控制器直流特性	21
9.7. I ² C TM 交流电气特性与寄存器映射	21
9.8. 出厂模式	25
9.8.1. 出厂模式附件检测	25
10. 参考原理图	27
11. 布局指南	29
11.1. 高速USB信号完整性的PCB布局指南	29

11.2.	GSM/TDMA的蜂声抑制布局	29
11.3.	V _{BUS_OUT} 负载时序要求	29
11.4.	多USB控制器的系统	29

方框图

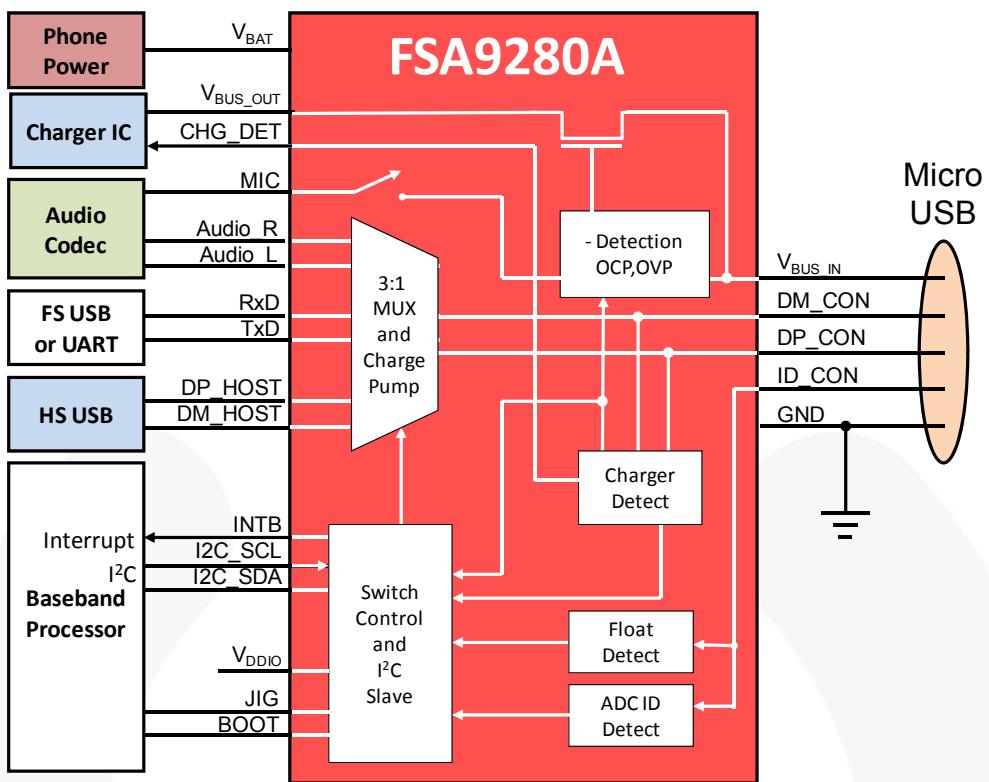


Figure 2. 方框图

管脚配置

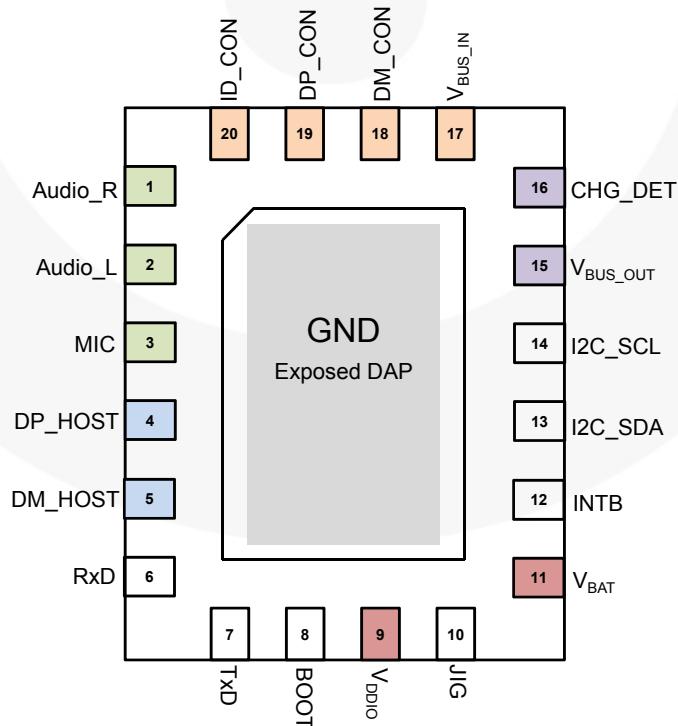


Figure 3. 管脚分配 (顶视图/俯视图)

物理尺寸

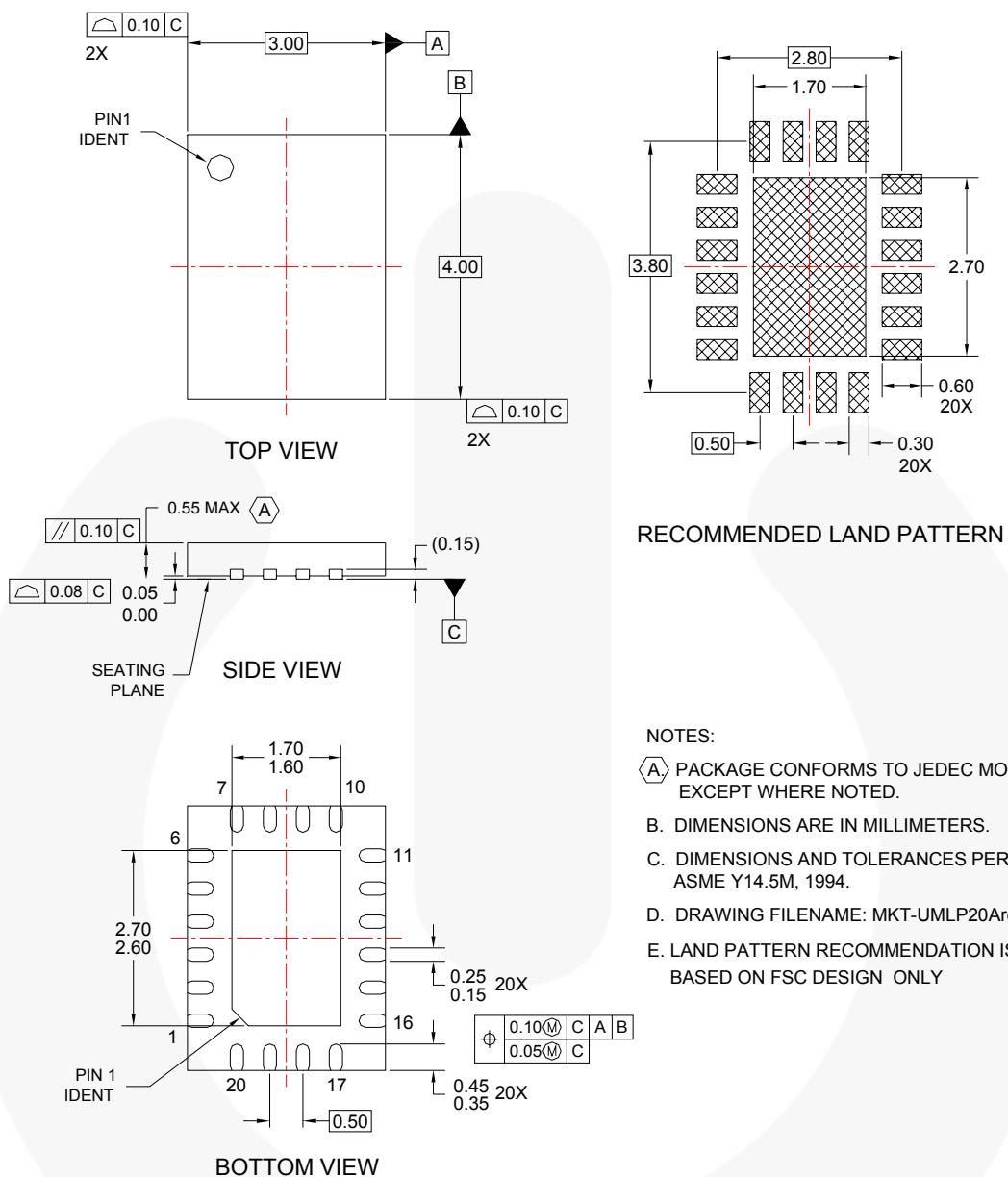


Figure 31. 20引线超薄制模无铅封装(UMLP), 3 x 4 x 0.55mm, 0.5mm 脚距

作为一项服务, 飞兆半导体器件的封装图, 都可以提供给客户。封装图可能会有所修改, 不再另行通知。请留意封装图上的版次与日期, 并联系飞兆半导体代表进行核对或获取最新版本。封装规格并不超出飞兆公司全球范围内的条款与条件, 尤其指保修, 保修涉及飞兆半导体的全部产品。

随时访问飞兆半导体在线封装网页, 可以获得最新的封装图: <http://www.fairchildsemi.com/packaging/>

请访问飞兆半导体在线封装网页, 可以获得最新的卷带规范: http://www.fairchildsemi.com/packaging/3x4UMLP20_TNR.pdf.

NOTES:

- (A) PACKAGE CONFORMS TO JEDEC MO-220 EXCEPT WHERE NOTED.
- B. DIMENSIONS ARE IN MILLIMETERS.
- C. DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.
- D. DRAWING FILENAME: MKT-UMLP20Arev1.
- E. LAND PATTERN RECOMMENDATION IS BASED ON FSC DESIGN ONLY



TRADEMARKS

The following includes registered and unregistered trademarks and service marks, owned by Fairchild Semiconductor and/or its global subsidiaries, and is not intended to be an exhaustive list of all such trademarks.

AccuPower™ F-PFST™ Power-SPM™
 Auto-SPM™ FRFET™ PowerTrench®
 Build it Now™ Global Power Resource™
 CorePLUS™ Green FPS™ PowerXST™
 CorePOWER™ Green FPS™ e-Series™ Programmable Active Droop™
 CROSSVOLT™ Gmax™ QFET™
 CTL™ GTO™ QS™
 Current Transfer Logic™ IntelliMAX™ Quiet Series™
 DEUXPEED® ISOPLANAR™ RapidConfigure™
 Dual Cool™ MegaBuck™ Saving our world, 1mW/kW at a time™
 EcoSPARK® MICROCOUPLER™ SignalWise™
 EfficientMax™ MicroFET™ SmartMax™
 ESBCTM MicroPak™ SMART START™
F® MicroPak2™ SPM®
 Fairchild® MillerDrive™ STEALTH™
 Fairchild Semiconductor® MotionMax™ SuperFET®
 FACT Quiet Series™ Motion-SPM™ SuperSOT™-3
 FACT® OptoHIT™ SuperSOT™-6
 FAST® OPTOLOGIC® SuperSOT™-8
 FastvCore™ OPTOPLANAR® SupreMOS®
 FETBench™ PDP SPM™ SyncFET™
 FlashWriter® Sync-Lock™
 FPS™

Power-SPM™
 PowerTrench®
 PowerXST™
 Programmable Active Droop™
 QFET™
 QS™
 Quiet Series™
 RapidConfigure™
 Saving our world, 1mW/kW at a time™
 SignalWise™
 SmartMax™
 SMART START™
 SPM®
 STEALTH™
 SuperFET®
 SuperSOT™-3
 SuperSOT™-6
 SuperSOT™-8
 SupreMOS®
 SyncFET™
 Sync-Lock™

S SYSTEM®
GENERAL
 The Power Franchise®
the power franchise
 TinyBoost™
 TinyBuck™
 TinyCalc™
 TinyLogic®
 TINYOPTO™
 TinyPower™
 TinyPWM™
 TinyWire™
 TriFault Detect™
 TRUECURRENT™
 μSerDes™
μ SerDes®
 UHC®
 Ultra FRFET™
 UniFET™
 VCX™
 VisualMax™
 XS™

* Trademarks of System General Corporation, used under license by Fairchild Semiconductor.

DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION, OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS. THESE SPECIFICATIONS DO NOT EXPAND THE TERMS OF FAIRCHILD'S WORLDWIDE TERMS AND CONDITIONS, SPECIFICALLY THE WARRANTY THEREIN, WHICH COVERS THESE PRODUCTS.

LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR CORPORATION.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

ANTI-COUNTERFEITING POLICY

Fairchild Semiconductor Corporation's Anti-Counterfeiting Policy. Fairchild's Anti-Counterfeiting Policy is also stated on our external website, www.fairchildsemi.com, under Sales Support.

Counterfeiting of semiconductor parts is a growing problem in the industry. All manufacturers of semiconductor products are experiencing counterfeiting of their parts. Customers who inadvertently purchase counterfeit parts experience many problems such as loss of brand reputation, substandard performance, failed applications, and increased cost of production and manufacturing delays. Fairchild is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. Fairchild strongly encourages customers to purchase Fairchild parts either directly from Fairchild or from Authorized Fairchild Distributors who are listed by country on our web page cited above. Products customers buy either from Fairchild directly or from Authorized Fairchild Distributors are genuine parts, have full traceability, meet Fairchild's quality standards for handling and storage, and provide access to Fairchild's full range of up-to-date technical and product information. Fairchild and our Authorized Distributors will stand behind all warranties and will appropriately address any warranty issues that may arise. Fairchild will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources. Fairchild is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative / In Design	Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

Rev. I50