Descriptions

The SGM3798YG/TR is an audio headset analog switch that is used to detect 3.5mm accessories and switch sleeve and ring by external controller. The ground signal is routed through a pair of low-impedance ground FETs (75mΩ typical), resulting minimal impact on audio cross-talk performance. The ground FETs of the device are designed to allow FM signal pass-through, making it possible to use the ground line of the headset as an FM antenna in mobile audio application.The SGM3798YG/TR is available in Green CSP-9 package.

It operates over an ambient temperature range of -40℃ to +85℃

Features

- Single supply range operating from 3.0V to 4.5V
- -118dB THD+N into 100kΩ load at 2Vrms
- -114dB THD+N into 32Ω load at 2Vrms
- Signal-to-Noise (SNR) Ratio 132dBA
- 100dB PSRR at 10kHz
- 145dB crosstalk & separation
- Pop/Click shunt circuit
- Audio Path Soft Turn-On/Off for Pop & Click Elimination

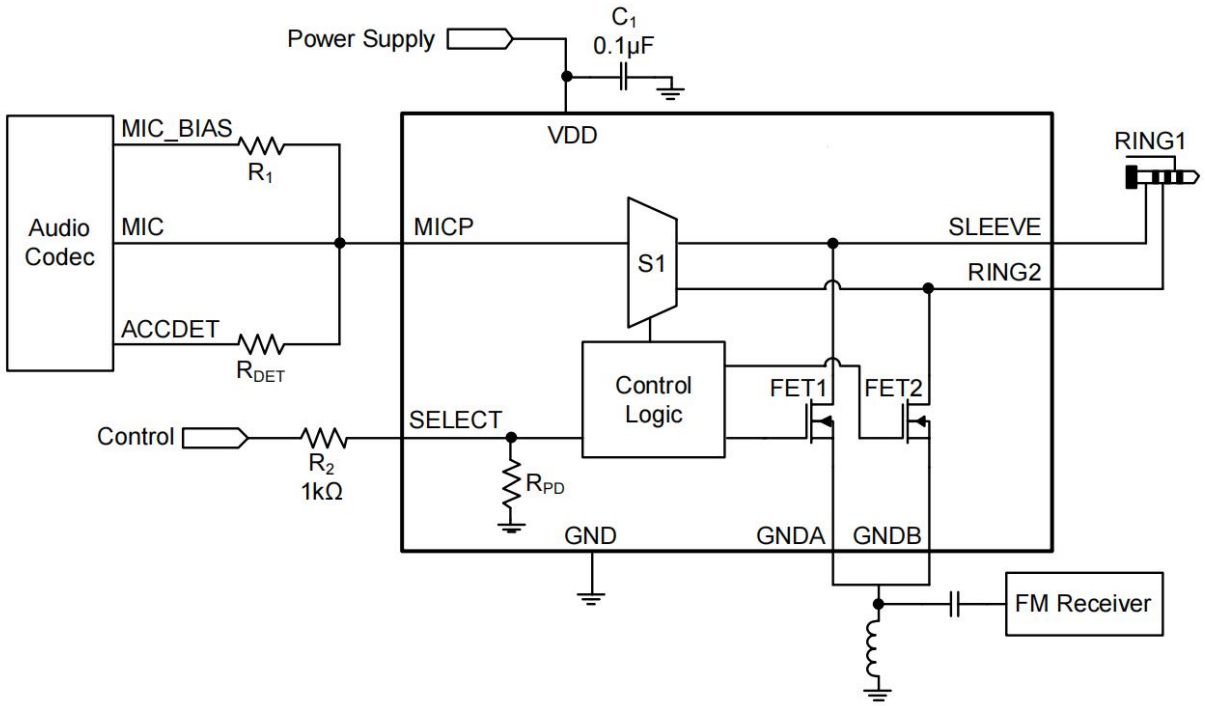
Applications

- Mobile Phones/Tablet PCs
- Notebook/Ultrabook Computers

Order Information

Part Number	Package		Quantity Per Reel
SGM3798YG/TR	CSP-9	Tape and Reel	3000PCS

Typical Application



Functional Diagram

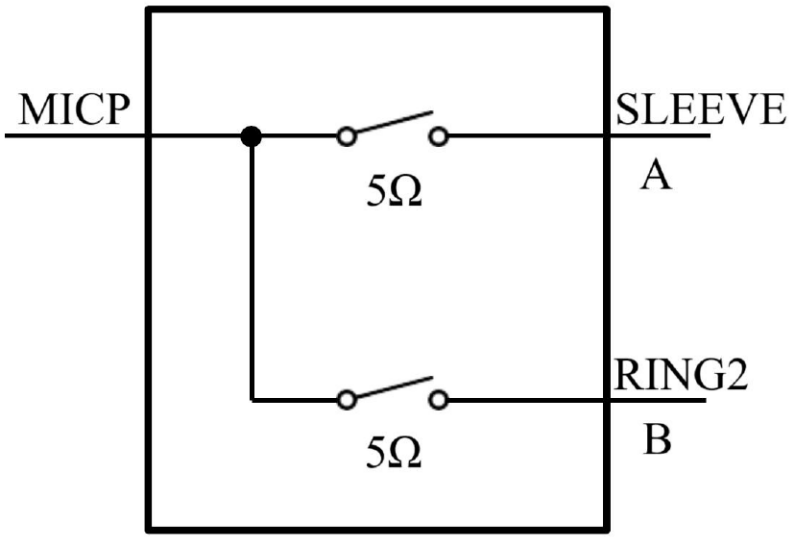


Fig.1 Functional Diagram

Pin Configuration

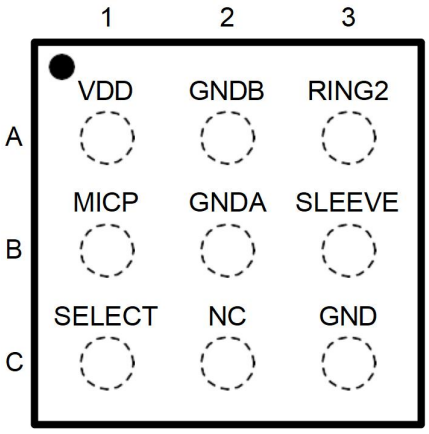
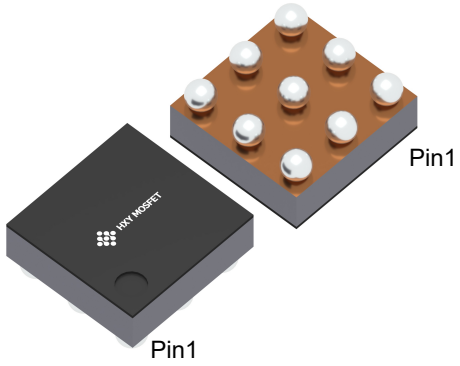


Fig.2 Top-Through View



CSP-9

Pin Descriptions

PIN	NAME	I/O	FUNCTION
A1	VDD	–	Power Supply for the Chip.
A2	GNDB	–	FET2 Ground Reference.
A3	RING2	I/O	Connected to the RING2 Segment of the Jack. This pin will be routed to MICP or GNDB depending on the logic level of SELECT pin.
B1	MICP	I/O	Microphone Signal Connection to Codec. Microphone bias should be fed into this pin.
B2	GNDA	–	FET1 Ground Reference.
B3	SLEEVE	I/O	Connected to the SLEEVE Segment of the Jack. This pin will be routed to MICP or GNDA depending on the logic level of SELECT pin.
C1	SELECT	I	The Logic Signal Used to Control S1 Switch, FET1 and FET2.
C2	NC	–	No Connection.
C3	GND	–	Chip Ground Reference.

Truth Table

Select	Function
0	MICP = A = SLEEVE, FET2 Turn On, FET1 Turn Off.
1	MICP = B = RING2, FET2 Turn Off, FET1 Turn On.

Absolute Maximum Ratings (1)

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	-0.3 ~6	V
Voltage Range on SELECT, MICP, RING2, SLEEVE	V_{IS}	-0.3 ~ VDD+0.3V	V
Storage Temperature Range	T_{STG}	-55 ~ 150	°C
Junction Temperature	T_J	150	°C
Lead Temperature (Soldering, 10 seconds)	T_L	260	°C
Thermal Resistance	$R_{\theta JA}$	80	°C/W

Recommend operating ratings (2)

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	2.6 ~ 5.0	V
Input/Output Voltage Range	V_{IN}	0.0 ~ 3.3	V

Note:

1. "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions beyond those indicated in the operational sections of this specification is not implied.

2. The input and output negative voltage ratings may be exceeded if the input and output diode current ratings are observed.

DC Electronics Characteristics

(V_{DD} = 2.6V to 5.0V, typical values are at V_{DD} = 3.3V, T_A = +25℃, unless otherwise noted.)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Input Voltage Range	VDD		2.6		5.0	V
Quiescent Current	IQ	VDD = 4.5V, VMICP = 1.8V to VDD, SELECT = Low or SELECT = High (after detection)		4		μA
Input/Output Voltage Range	VIO		0		3.3	V
Input Logic High for SELECT	VIH	VDD = 2.6V	1.1		VDD	V
		VDD = 3.3V	1.1		VDD	
		VDD = 4.5V	1.3		VDD	
Input Logic Low for SELECT	VIL	VDD = 2.6V	0		0.7	V
		VDD = 3.3V	0		0.8	
		VDD = 4.5V	0		0.8	
Pull Down Resistor of Select Pin	RPD			560		kΩ
FET1 On Resistance	RF1	VDD = 2.6V, VGND = 0V, IGND = 10mA		75		mΩ
FET2 On Resistance	RF2			75		
S1 On Resistance (Closed to A)	RS1A	VDD = 2.6V, VSLEEVE/RING2 = 0V to 2.6V, IMIC = ±10mA		5		Ω
S1 On Resistance (Closed to B)	RS1B			5		

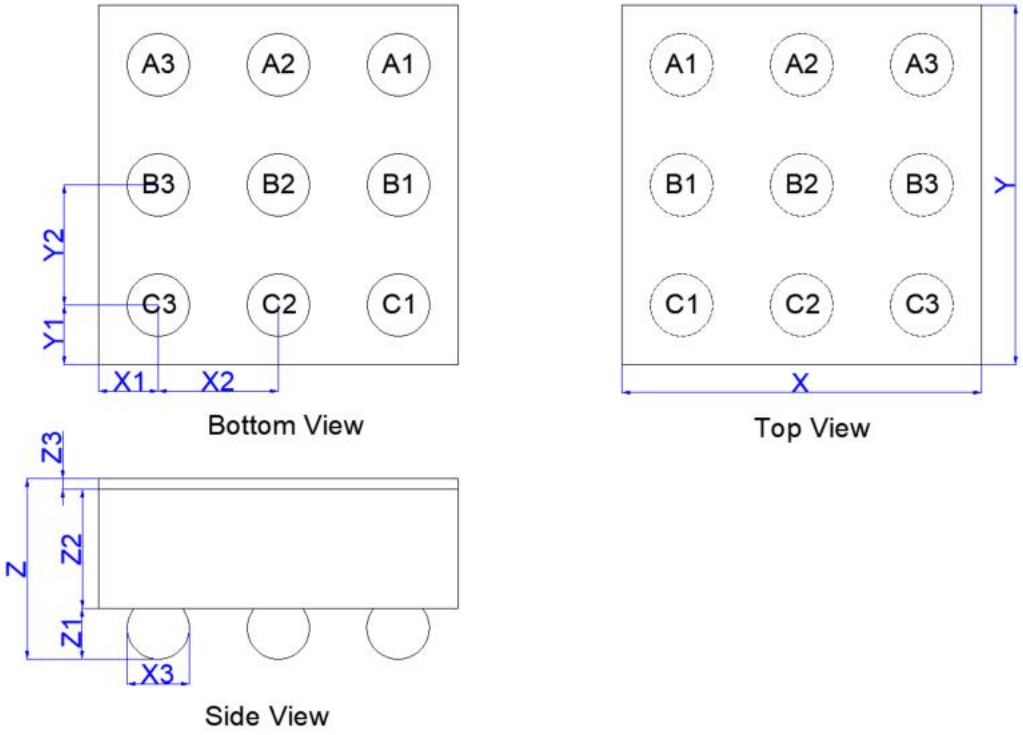
Note:

(1) Flatness is defined as the difference between maximum and minimum value of ON-resistance at the specified analog signal voltage points.

(2) R_{ON} matching between channels is calculated by subtracting the channel with the lowest max Ron value from the channel with the highest max Ron value.

Package outline dimensions

CSP-9



Symbol	Dimensions In Millimeter		
	Min.	Typ.	Max.
X	1.145	1.17	1.195
Y	1.145	1.17	1.195
X1	-	0.185	-
X2		0.400	-
X3	0.245	0.270	0.295
Y1	-	0.185	-
Y2	-	0.400	-
Z	0.535	0.575	0.615
Z1	0.170	0.195	0.22
Z2	0.345	0.355	0.365
Z3	0.02	0.025	0.03

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