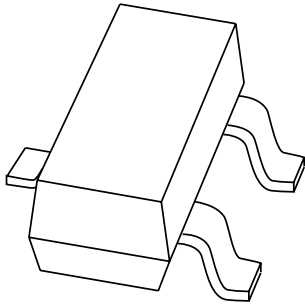


DATA SHEET



BF1107 Silicon N-channel single gate MOSFET

Preliminary specification
File under Discrete Semiconductors, SC07

1998 Apr 07

Silicon N-channel single gate MOSFET

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FEATURES

- Currentless RF switch.

APPLICATIONS

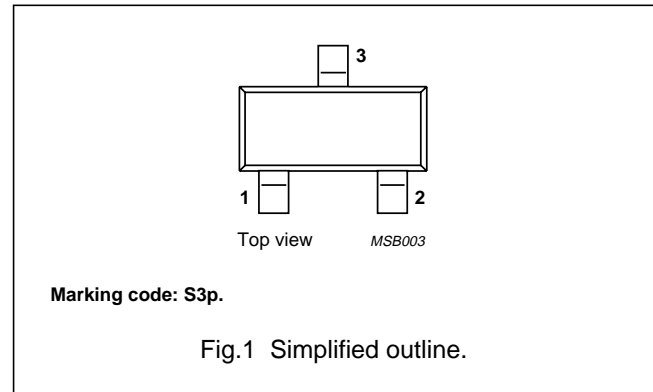
- Various RF switching applications such as:
 - Passive loop-through for VCR tuner
 - Transceiver switching.

DESCRIPTION

Depletion type field-effect transistor in a SOT23 package. The low loss and high isolation capabilities of this MOSFET provide excellent RF switching functions. Integrated diodes between gate and source and between gate and drain protect against excessive input voltage surges.

PINNING - SOT23

PIN	DESCRIPTION
1	drain
2	source
3	gate



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$S_{21(\text{on})}$	losses	$R_S = R_L = 50 \Omega$; $f = 50$ to 860 MHz	–	1.5	2.5	dB
$S_{21(\text{off})}$	isolation		30	33	–	dB
R_{DSon}	drain-source on-resistance	$V_{\text{GS}} = 0$; $I_{\text{D}} = 1$ mA	–	10	–	Ω
$V_{\text{GS(off)}}$	pinch-off voltage	$I_{\text{D}} = 20 \mu\text{A}$	–	–3	–4.5	V

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134)

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{DS}	drain-source voltage		–	3	V
V_{SD}	source-drain voltage		–	3	V
V_{DG}	drain-gate voltage		–	7	V
V_{SG}	source-gate voltage		–	7	V
I_{D}	drain current		–	10	mA
T_{stg}	storage temperature		–65	+150	$^{\circ}\text{C}$
T_{j}	junction temperature		–	150	$^{\circ}\text{C}$

CAUTION

This product is supplied in anti-static packing to prevent damage caused by electrostatic discharge during transport and handling. For further information, refer to Philips specs.: SNW-EQ-608, SNW-FQ-302A and SNW-FQ-302B.

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THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-s}$	thermal resistance from junction to soldering point; note 1	260	K/W

Note

1. Soldering point of the gate lead.

STATIC CHARACTERISTICS

$T_j = 25\text{ }^\circ\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)GSS}$	gate-source breakdown voltage	$V_{DS} = 0$; $I_{GS} = 1\text{ mA}$	7	–	–	V
$V_{GS\ (off)}$	gate-source pinch-off voltage	$V_{DS} = 1\text{ V}$; $I_D = 20\ \mu\text{A}$	–	–	–4.5	V
I_{DSX}	drain-source leakage current	$V_{GS} = -5\text{ V}$; $V_{DS} = 2\text{ V}$	–	–	10	μA
I_{GSS}	gate cut-off current	$V_{GS} = -5\text{ V}$; $V_{DS} = 0$	–	–	100	nA

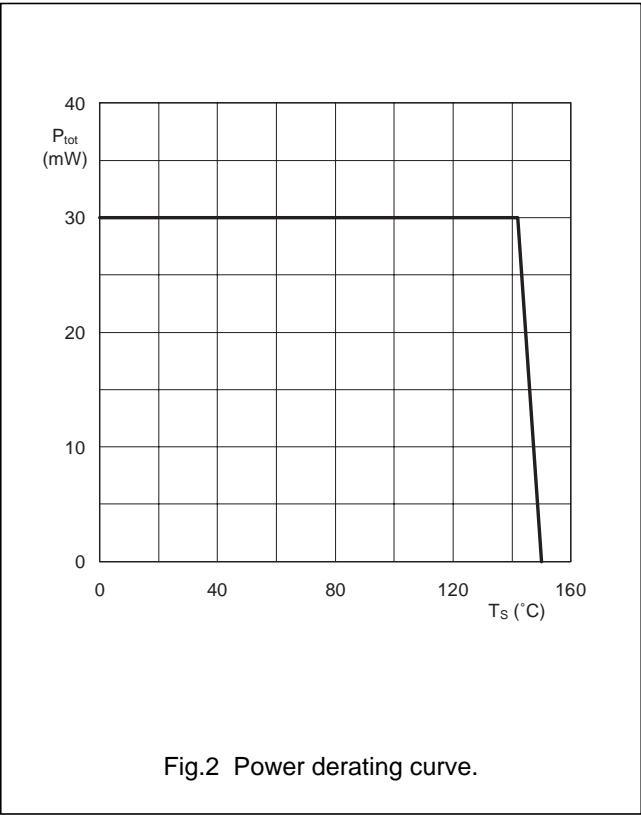
DYNAMIC CHARACTERISTICS

Common gate; $T_{amb} = 25\text{ }^\circ\text{C}$

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$S_{21(on)}$	losses	$V_{SG} = V_{DG} = 0$; $R_S = R_L = 50\ \Omega$; $f = 50\text{ to }860\text{ MHz}$	–	1.5	2.5	dB
		$V_{SG} = V_{DG} = 0$; $R_S = R_L = 75\ \Omega$; $f = 50\text{ to }860\text{ MHz}$	–	2.5	3.5	dB
$S_{21(off)}$	isolation	$V_{SG} = V_{DG} = 5\text{ V}$; $R_S = R_L = 50\ \Omega$; $f = 50\text{ to }860\text{ MHz}$	30	35	–	dB
		$V_{SG} = V_{DG} = 5\text{ V}$; $R_S = R_L = 75\ \Omega$; $f = 50\text{ to }860\text{ MHz}$	30	33	–	dB
R_{DSon}	drain-source on-resistance	$V_{GS} = 0$; $I_D = 1\text{ mA}$	–	12	–	Ω
C_{ig}	input capacitance	$V_{SG} = V_{DG} = 5\text{ V}$	–	0.9	–	pF
		$V_{SG} = V_{DG} = 0$	–	1.5	–	pF
C_{og}	output capacitance	$V_{SG} = V_{DG} = 5\text{ V}$	–	0.9	–	pF
		$V_{SG} = V_{DG} = 0$	–	1.5	–	pF

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max.	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT23						97-02-28

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DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

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Printed in The Netherlands

115102/00/01/pp8

Date of release: 1998 Apr 07

Document order number: 9397 750 03695

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