

**MAR1107**

The item can replace BF1107

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Approved by:
Checked by:
Issued by:

## **SPECIFICATION**

PRODUCT: N-channel MOSFET

MODEL: MAR1107 SOT23

**HOPE MICROELECTRONIC CO.,LIMITED**

## MAR1107

The item can replace BF1107

### FEATURES

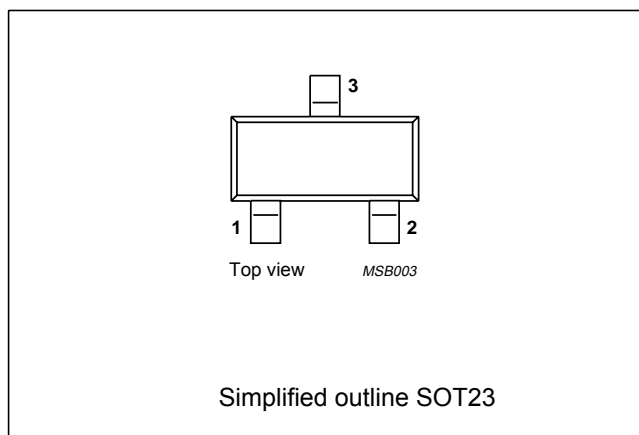
- Currentless RF switch.

### APPLICATIONS

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

### DESCRIPTION

The MAR1107 are depletion type field-effect transistors in SOT23 packages respectively. The low loss and high isolation capabilities of this MOS-FET provide excellent RF switching functions. Integrated diodes between gate and source and between gate and drain protect against excessive input voltage surges. Drain and source are interchangeable.



### PINNING

PIN	DESCRIPTION
	MAR1107
1	drain
2	source
3	gate

### QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$ S_{21(\text{on})} ^2$	losses (on-state)	$R_S = R_L = 50 \Omega$ ; $f = 50$ to $860$ MHz	–	–	2.5	dB
$ S_{21(\text{off})} ^2$	isolation (off-state)		30	–	–	dB
$R_{DS(\text{on})}$	drain-source on-resistance	$V_{GS} = 0$ ; $I_D = 1$ mA	–	12	20	$\Omega$
$V_{GS(\text{off})}$	pinch-off voltage	$I_D = 20 \mu\text{A}$ ; $V_{DS} = 1$ V	–	–3	–4.5	V

**LIMITING VALUES**

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

SYMBOL	PARAMETER	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	°C
$T_j$	junction temperature	–	150	°C

**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**

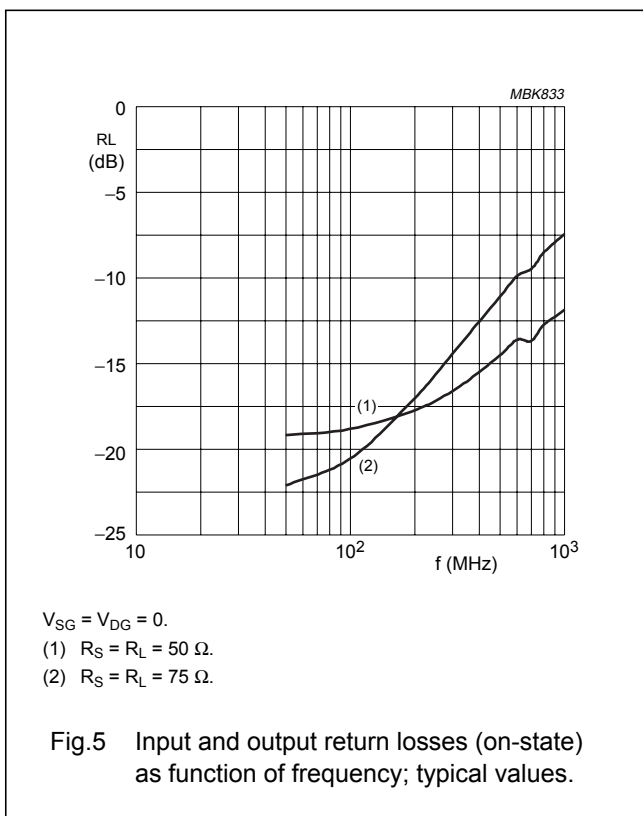
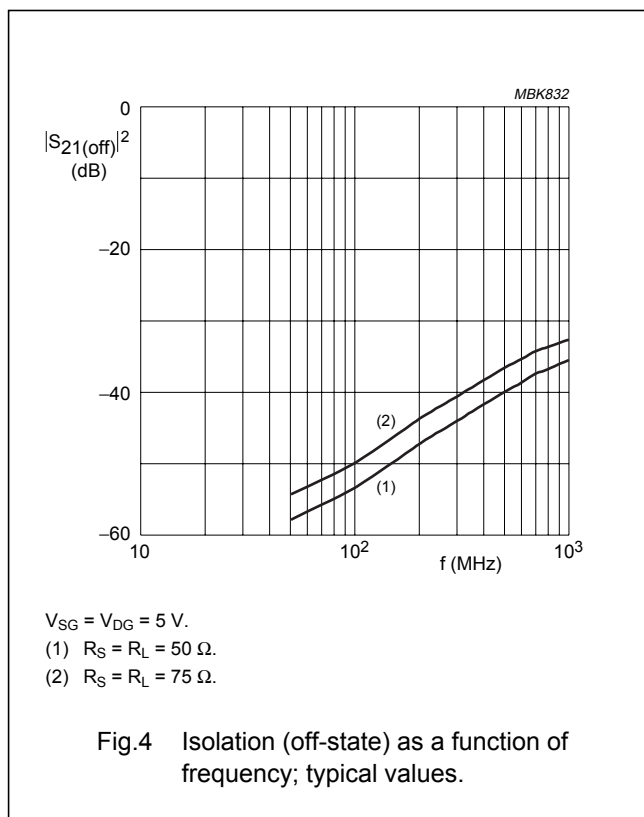
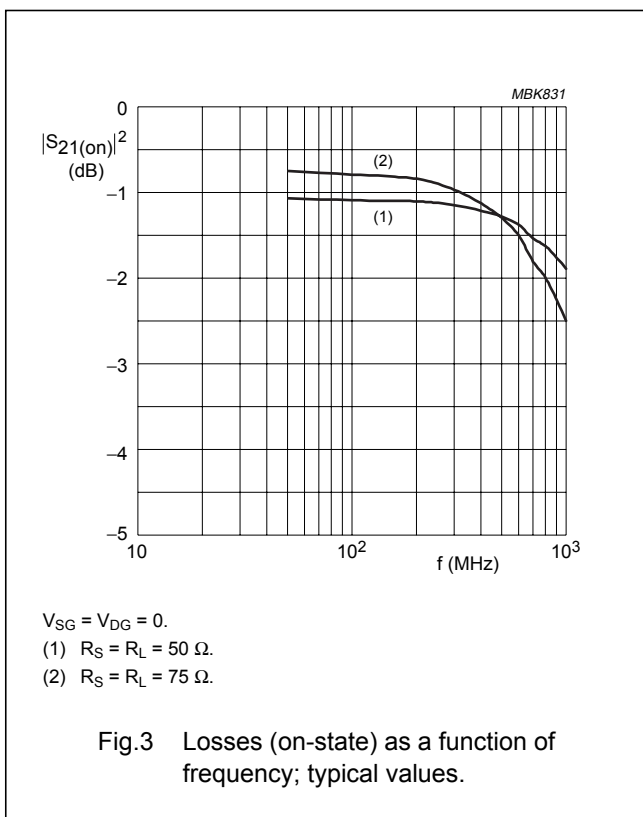
$T_j = 25\text{ °C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$V_{(BR)GSS}$	gate-source breakdown voltage	$V_{DS} = 0; I_{GS} = 0.1\text{ mA}$	7	–	–	V
$V_{GSoff}$	gate-source pinch-off voltage	$V_{DS} = 1\text{ V}; I_D = 20\text{ }\mu\text{A}$	–	–3	–4.5	V
$I_{DSX}$	drain-source leakage current	$V_{GS} = -5\text{ V}; V_{DS} = 2\text{ V}$	–	–	10	$\mu\text{A}$
$I_{GSS}$	gate cut-off current	$V_{GS} = -5\text{ V}; V_{DS} = 0$	–	–	100	nA

**DYNAMIC CHARACTERISTICS**

Common gate;  $T_{amb} = 25\text{ °C}$ .

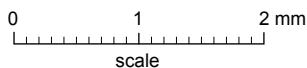
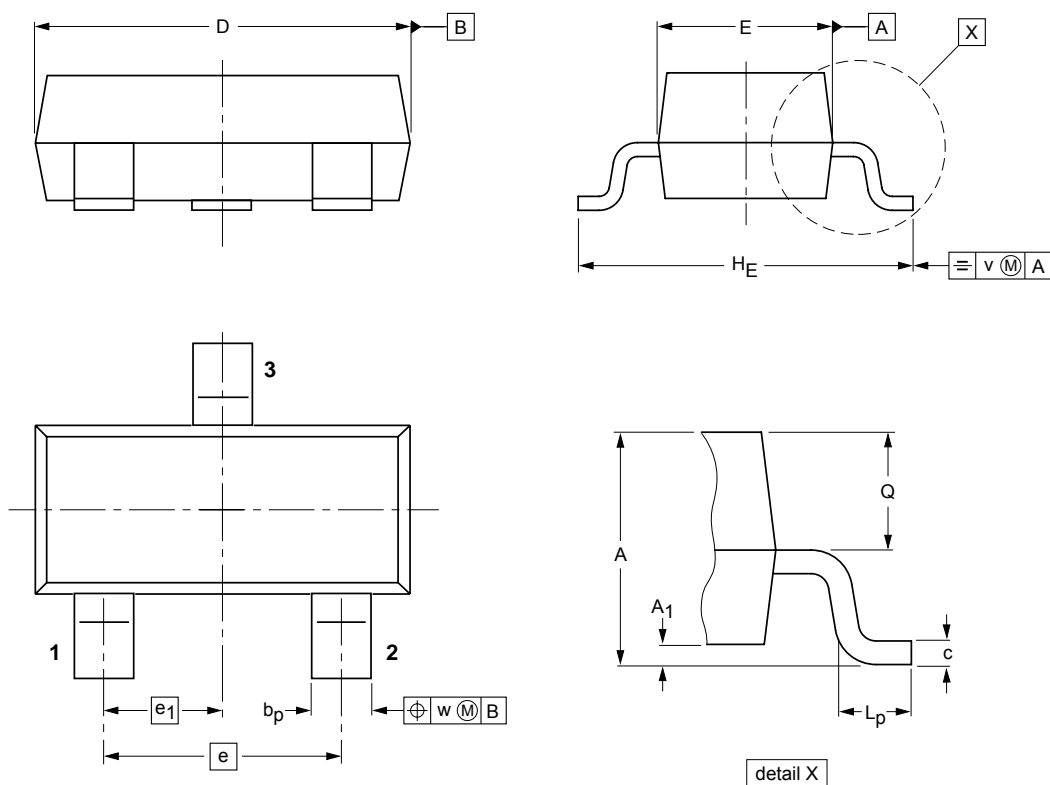
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$ S_{21(on)} ^2$	losses (on-state)	$V_{SG} = V_{DG} = 0; R_S = R_L = 50\text{ }\Omega;$ $f = 50\text{ to }860\text{ MHz}$	–	–	2.5	dB
		$V_{SG} = V_{DG} = 0; R_S = R_L = 75\text{ }\Omega;$ $f = 50\text{ to }860\text{ MHz}$	–	–	3.5	dB
$ S_{21(off)} ^2$	isolation (off-state)	$V_{SG} = V_{DG} = 5\text{ V}; R_S = R_L = 50\text{ }\Omega;$ $f = 50\text{ to }860\text{ MHz}$	30	–	–	dB
		$V_{SG} = V_{DG} = 5\text{ V}; R_S = R_L = 75\text{ }\Omega;$ $f = 50\text{ to }860\text{ MHz}$	30	–	–	dB
$R_{DSon}$	drain-source on-resistance	$V_{GS} = 0; I_D = 1\text{ mA}$	–	12	20	$\Omega$
$C_{ig}$	input capacitance	$V_{SG} = V_{DG} = 5\text{ V}; f = 1\text{ MHz}$	–	0.9	–	pF
		$V_{SG} = V_{DG} = 0; f = 1\text{ MHz}$	–	1.5	2	pF
$C_{og}$	output capacitance	$V_{SG} = V_{DG} = 5\text{ V}; f = 1\text{ MHz}$	–	0.9	–	pF
		$V_{SG} = V_{DG} = 0; f = 1\text{ MHz}$	–	1.5	2	pF



PACKAGE OUTLINES

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	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