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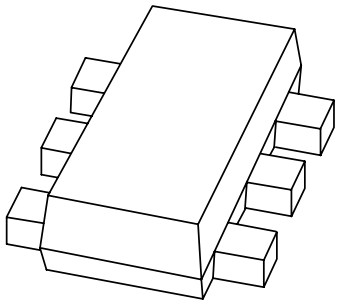
Kind regards,

Team Nexperia

DATA SHEET



PMEG1020EV

Ultra low V_F MEGA Schottky barrier rectifier

Product data sheet

2003 Jul 15

Ultra low V_F MEGA Schottky barrier rectifier

PMEG1020EV

FEATURES

- Forward current: 2 A
- Reverse voltage: 10 V
- Ultra low forward voltage
- Ultra small plastic SMD package.

APPLICATIONS

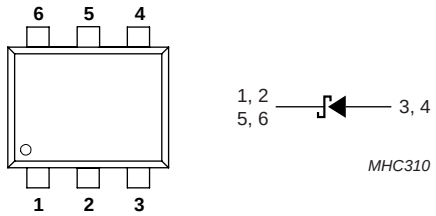
- Low voltage rectification
- High efficiency DC/DC conversion
- Switch mode power supply
- Inverse polarity protection
- Low power consumption applications.

DESCRIPTION

Planar Maximum Efficiency General Application (MEGA) Schottky barrier rectifier with an integrated guard ring for stress protection encapsulated in a SOT666 ultra small plastic SMD package.

PINNING

PIN	DESCRIPTION
1	cathode
2	cathode
3	anode
4	anode
5	cathode
6	cathode



Marking code: F2.

Fig.1 Simplified outline (SOT666) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_R	continuous reverse voltage		–	10	V
I_F	continuous forward current	$T_{sp} \leq 55$ °C; note 1	–	2	A
I_{FRM}	repetitive peak forward current	$t_p \leq 1$ ms; $\delta \leq 0.5$; note 1	–	3.2	A
I_{FSM}	non-repetitive peak forward current	$t_p = 8$ ms square wave; note 1	–	9	A
T_{stg}	storage temperature		−65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		−65	+150	°C

Note

1. Only valid if pins 3 and 4 are connected in parallel.

ELECTRICAL CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V_F	forward voltage	see Fig.2; note 1			
		I_F = 0.01 A	100	130	mV
		I_F = 0.1 A	164	200	mV
		I_F = 1 A	255	350	mV
		I_F = 2 A	306	460	mV
I_R	reverse current	see Fig.3 note 2			
		V_R = 5 V	0.7	2	mA
		V_R = 8 V	1	2.5	mA
		V_R = 10 V	1.2	3	mA
C_d	diode capacitance	V_R = 5 V; f = 1 MHz; see Fig.4	37	45	pF

Notes

1. Pulse test: t_p = 300 μs; δ = 0.02.
2. For Schottky barrier rectifiers thermal runaway has to be considered, as in some applications the reverse power losses (P_R) are a significant part of the total power losses.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	405	K/W
		note 2	215	K/W
$R_{th\ j\text{-}s}$	thermal resistance from junction to solder point	note 3	80	K/W

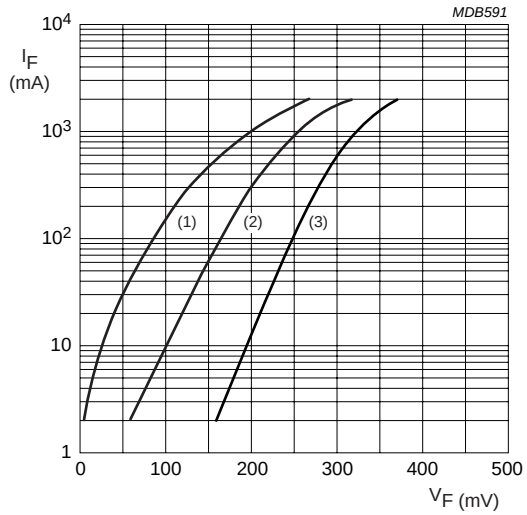
Notes

1. Refer to SOT666 standard mounting conditions.
2. Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for cathode 1 cm^2.
3. Solder point of cathode tabs.

Soldering

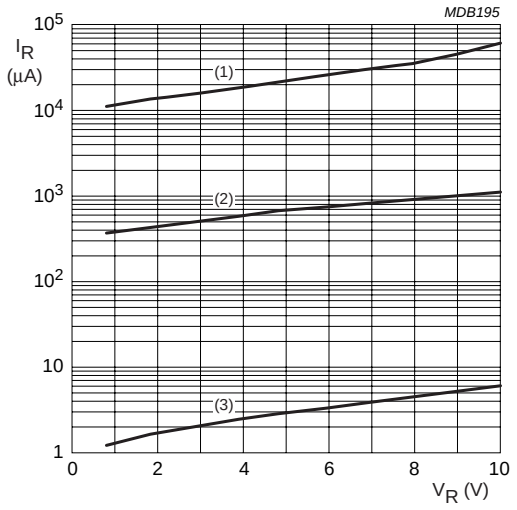
Reflow soldering is the only recommended soldering method.

GRAPHICAL DATA



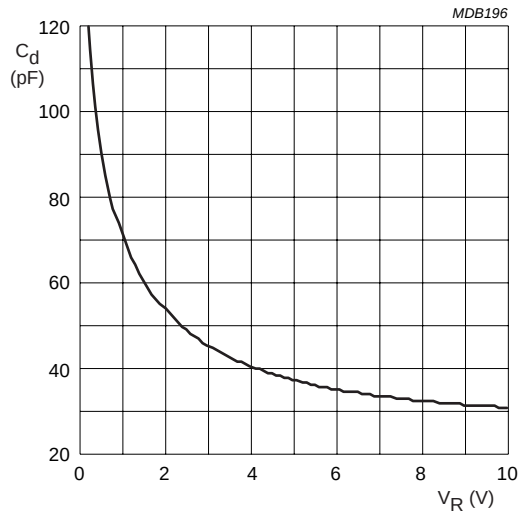
(1) T_{amb} = 85 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = –40 °C.

Fig.2 Forward current as a function of forward voltage; typical values.



(1) T_{amb} = 85 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = –40 °C.

Fig.3 Reverse current as a function of reverse voltage; typical values.

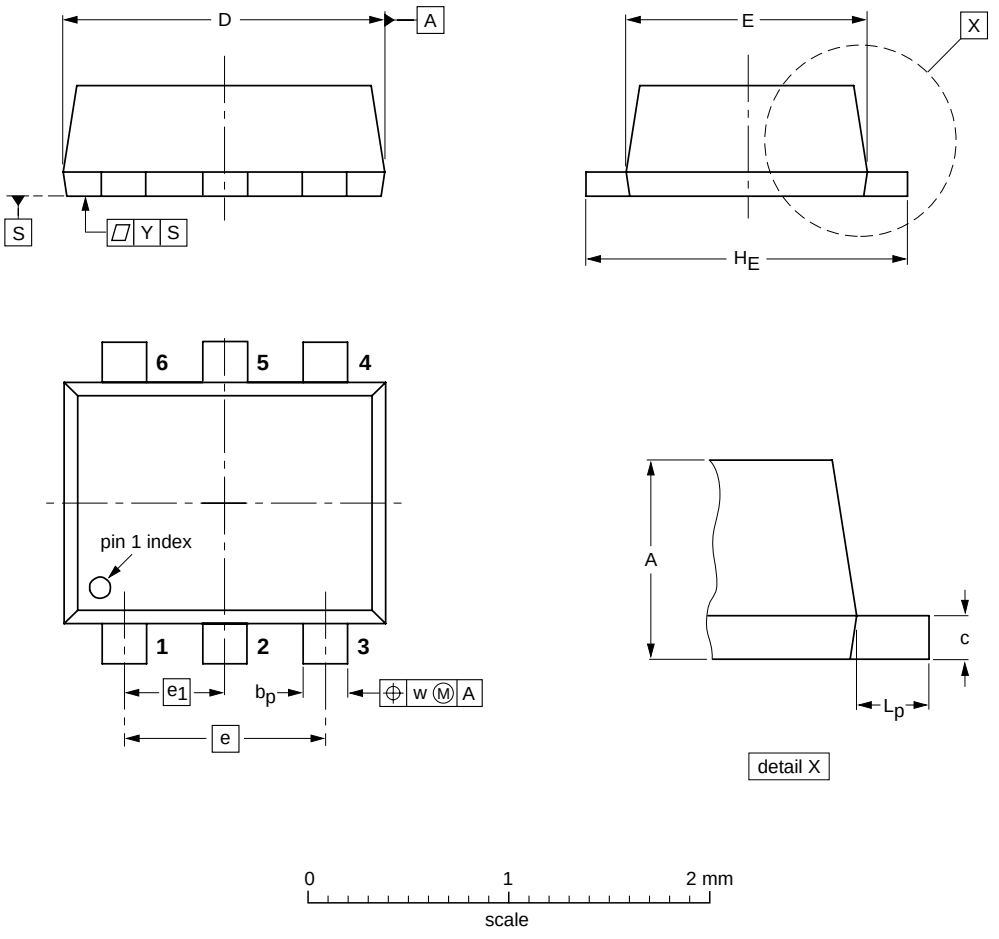


f = 1 MHz; T_{amb} = 25 °C.

Fig.4 Diode capacitance as a function of reverse voltage; typical values.

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads **SOT666**



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_p	c	D	E	e	e_1	H_E	L_p	w	y
mm	0.6 0.5	0.27 0.17	0.18 0.08	1.7 1.5	1.3 1.1	1.0	0.5	1.7 1.5	0.3 0.1	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT666						~~01-01-04~~ 01-08-27

DATA SHEET STATUS

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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NXP Semiconductors

Customer notification

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Printed in The Netherlands 613514/01/pp7 Date of release: 2003 Jul 15 Document order number: 9397 750 11686