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Product data sheet

Product profile 1.

1.1 General description

Planar Maximum Efficiency General Application (MEGA) Schottky barrier rectifiers with an integrated guard ring for stress protection, encapsulated in small Surface-Mounted Device (SMD) plastic packages.

Table 1. **Product overview**

Type number	Package	Package	
	NXP	JEITA	
PMEG2010AEH	SOD123F	-	single
PMEG2010AET	SOT23	-	single

1.2 Features

- Forward current: $I_F \le 1 A$
- Reverse voltage: $V_R \le 20 V$
- Very low forward voltage
- Small SMD plastic packages

1.3 Applications

- Low voltage rectification
- High efficiency DC-to-DC conversion
- Switch mode power supply
- Reverse polarity protection
- Low power consumption applications

1.4 Quick reference data

Table 2. Quick reference data

Symbol	Parameter	Conditions	Min	Тур	Max	Unit
I _F	forward current	$T_{sp} \le 55 \ ^{\circ}C$	-	-	1	А
V _R	reverse voltage		-	-	20	V
V _F	forward voltage	I _F = 1 A	<u>[1]</u> _	380	430	mV

[1] Pulse test: $t_p \le 300 \ \mu s$; $\delta \le 0.02$.



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2. Pinning information

Table 3.	Pinning	
Pin	Description	Simplified outline Symbol
SOD123F		
1	cathode	
2	anode	1 2 1 2
		sym001
SOT23		
1	anode	
2	not connected	
3	cathode	
		1 2 <i>006aaa436</i>

[1] The marking bar indicates the cathode.

3. Ordering information

Table 4. Orderin	ng informatio	n	
Type number	Package		
	Name	Description	Version
PMEG2010AEH	-	plastic surface-mounted package; 2 leads	SOD123F
PMEG2010AET	-	plastic surface-mounted package; 3 leads	SOT23

4. Marking

Table 5. Marking codesType numberMarking code[1]PMEG2010AEHAFPMEG2010AET*AX

[1] * = -: made in Hong Kong

* = p: made in Hong Kong

* = t: made in Malaysia

* = W: made in China

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5. Limiting values

Symbol	Parameter	Conditions	Min	Max	Unit
V _R	reverse voltage		-	20	V
l _F	forward current	$T_{sp} \le 55 \ ^{\circ}C$	-	1	А
I _{FRM}	repetitive peak forward current	$\begin{array}{l} t_p \leq 1 \text{ ms;} \\ \delta \leq 0.25 \end{array}$			
	PMEG2010AEH		-	7	А
	PMEG2010AET		-	6	А
I _{FSM}	non-repetitive peak forward current	square wave; t _p = 8 ms	-	9	А
P _{tot}	total power dissipation	$T_{amb} \le 25 \ ^{\circ}C$			
	PMEG2010AEH		<u>[1]</u> -	375	mW
			[2] _	830	mW
	PMEG2010AET		<u>[1]</u> _	280	mW
			[2] _	420	mW
Tj	junction temperature		-	150	°C
T _{amb}	ambient temperature		-65	+150	°C
T _{stg}	storage temperature		-65	+150	°C

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm².

6. Thermal characteristics

Table 7.	Thermal characteristics					
Symbol	Parameter	Conditions	Min	Тур	Max	Unit
R _{th(j-a)}	thermal resistance from junction to ambient	in free air	<u>[1]</u>			
	PMEG2010AEH		[2] _	-	330	K/W
			[3] _	-	150	K/W
	PMEG2010AET		[2] _	-	440	K/W
			[3] _	-	300	K/W
R _{th(j-sp)}	thermal resistance from junction to solder point		<u>[4]</u>			
	PMEG2010AEH		-	-	60	K/W
	PMEG2010AET		-	-	120	K/W

 For Schottky barrier diodes 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.

[2] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

[3] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for cathode 1 cm².

[4] Soldering point of cathode tab.

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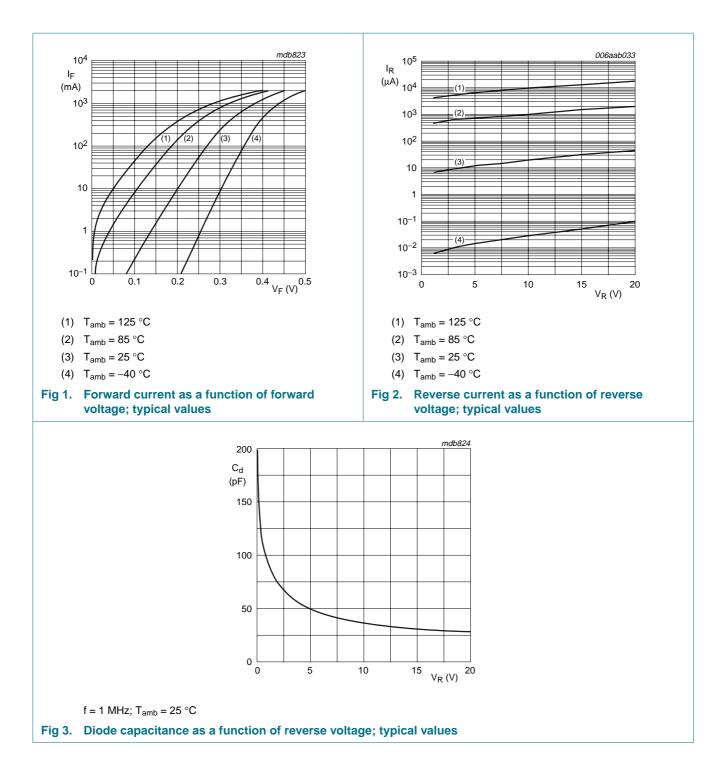
7. Characteristics

Table 8. T _{amb} = 25	Characteristics °C unless otherwise s	specified.				
Symbol	Parameter	Conditions	Min	Тур	Max	Unit
V _F	forward voltage		<u>[1]</u>			
		I _F = 10 mA	-	200	220	mV
		I _F = 100 mA	-	265	290	mV
		I _F = 1 A	-	380	430	mV
I _R	reverse current	V _R = 5 V	-	15	50	μA
		V _R = 10 V	-	20	80	μA
		V _R = 20 V	-	50	200	μA
C _d	diode capacitance	V _R = 5 V; f = 1 MHz	-	55	70	pF

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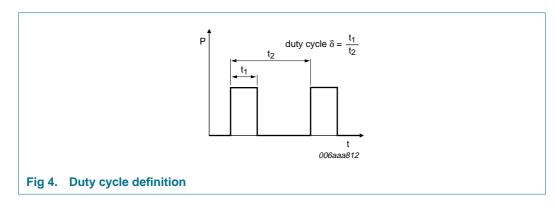
PMEG2010AEH; PMEG2010AET

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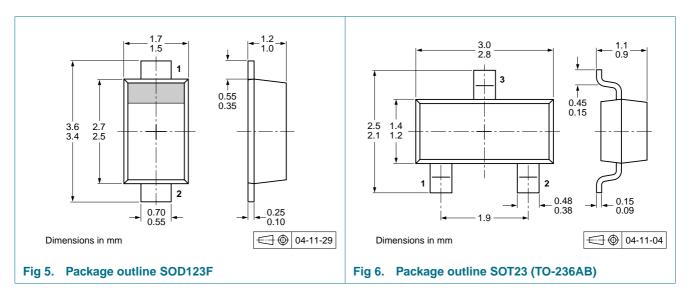


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8. Test information



9. Package outline



10. Packing information

Table 9. Packing methods

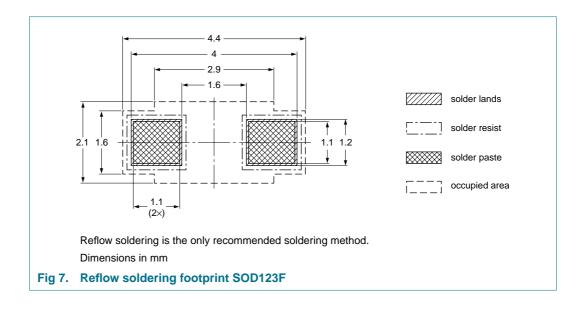
The indicated -xxx are the last three digits of the 12NC ordering code.[1]

Type number	pe number Package Description		Packing	Packing quantity	
			3000	10000	
PMEG2010AEH	SOD123F	4 mm pitch, 8 mm tape and reel	-115	-135	
PMEG2010AET	SOT23	4 mm pitch, 8 mm tape and reel	-215	-235	

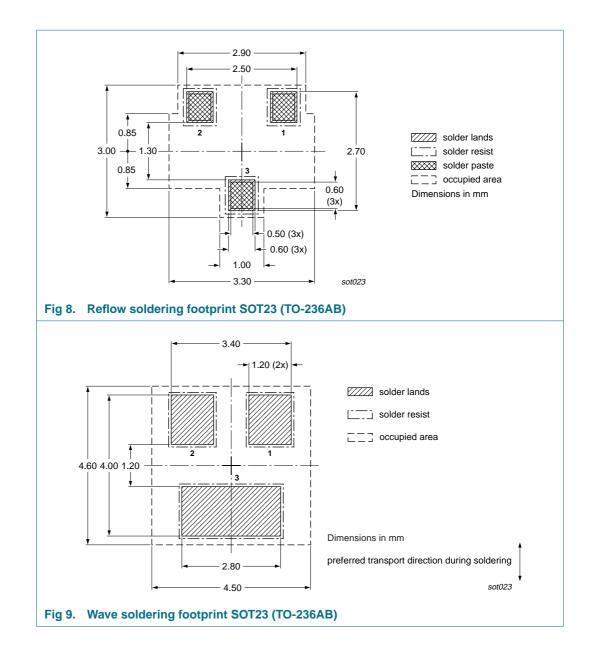
[1] For further information and the availability of packing methods, see Section 14.

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11. Soldering



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12. Revision history

Table 10.Revision history

-				
Document ID	Release date	Data sheet status	Change notice	Supersedes
PMEG2010AEH_PMEG2010AET_3	20070328	Product data sheet	-	PMEG2010AEH_2
Modifications:		f this data sheet has bee elines of NXP Semicondu	5	ply with the new
	 Legal texts have 	ave been adapted to the	new company name	where appropriate.
	 Type number 	PMEG2010AET added		
	Section 1.1 "	General description": am	ended	
	Table 1 "Proc	duct overview": added		
	Table 7 "Ther	rmal characteristics": Tab	le note 1 amended	
	Table 7 "Ther	rmal characteristics": Tab	le note 4 added	
	• Table 8 "Cha	<u>racteristics"</u> : C _d diode ca	pacitance conditions	adapted
	• Figure 2: amo	ended		
	Section 8 "Te	est information": added		
	 Section 13 "L 	egal information": updat	ed	
PMEG2010AEH_2	20050526	Product data sheet	-	PMEG2010AEH_1
PMEG2010AEH_1	20050406	Product data sheet	-	-

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13. Legal information

13.1 Data sheet status

Document status ^{[1][2]}	Product status ^[3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

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PMEG2010AEH_PMEG2010AET_3

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