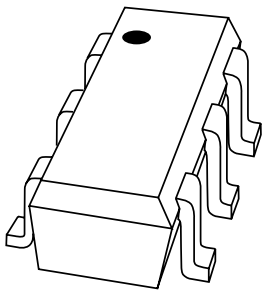
DATA SHEET



BAS16VY
High-speed switching diode array

Product specification

2003 Apr 08

Philips
Semiconductors

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High-speed switching diode array BAS16VY

FEATURES

- Small plastic SMD package
- High switching speed
- Three electrically isolated diodes
- Low capacitance.

APPLICATIONS

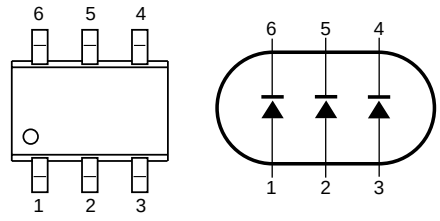
- General purpose switching in surface mounted circuits.

DESCRIPTION

The BAS16VY consists of three electrically isolated high-speed switching diodes, encapsulated in a small SOT363 (SC-88) SMD plastic package.

PINNING

PIN	DESCRIPTION
1	anode (a1)
2	anode (a2)
3	anode (a3)
4	cathode (k3)
5	cathode (k2)
6	cathode (k1)



Marking code: 16p.

Fig.1 Simplified outline (SOT363; SC-88) and symbol.

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per diode					
V_{RRM}	repetitive peak reverse voltage		–	85	V
V_R	continuous reverse voltage		–	75	V
I_F	continuous forward current		–	200	mA
I_{FRM}	repetitive peak forward current		–	450	mA
I_{FSM}	non-repetitive peak forward current	square wave; T_j = 25 °C prior to surge; see Fig.4			
		t = 1 μs	–	4.5	A
		t = 1 ms	–	1	A
		t = 1 s	–	0.5	A
P_{tot}	total power dissipation	T_s = 85 °C; note 1	–	250	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–65	+150	°C

Note

1. Solder points at pins: 2, 3, 5 and 6.

ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MAX.	UNIT
Per diode				
V_F	forward voltage	see Fig.3		
		I_F = 1 mA	715	mV
		I_F = 10 mA	855	mV
		I_F = 50 mA	1	V
		I_F = 150 mA	1.25	V
I_R	reverse current	see Fig.5		
		V_R = 25 V	30	nA
		V_R = 75 V	1	µA
		V_R = 25 V; T_j = 150 °C	30	µA
		V_R = 75 V; T_j = 150 °C	50	µA
C_d	diode capacitance	f = 1 MHz; V_R = 0; see Fig.6	1.5	pF
t_{rr}	reverse recovery time	when switched from I_F = 10 mA to I_R = 10 mA; R_L = 100 Ω; measured at I_R = 1 mA; see Fig.7	4	ns
V_{fr}	forward recovery voltage	when switched from I_F = 10 mA; t_r = 20 ns; see Fig.8	1.75	V

THERMAL CHARACTERISTICS

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

Note

1. Solder points at pins: 2, 3, 5 and 6.

GRAPHICAL DATA

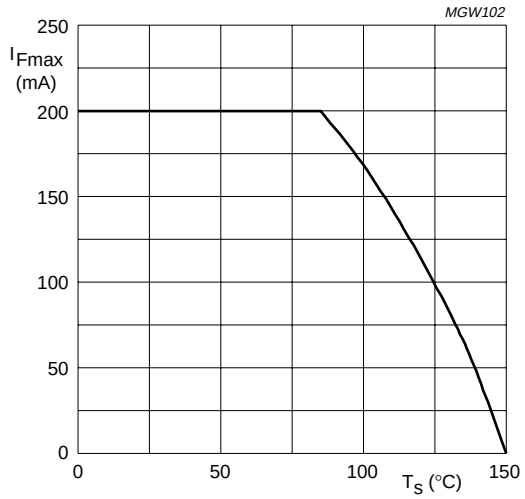
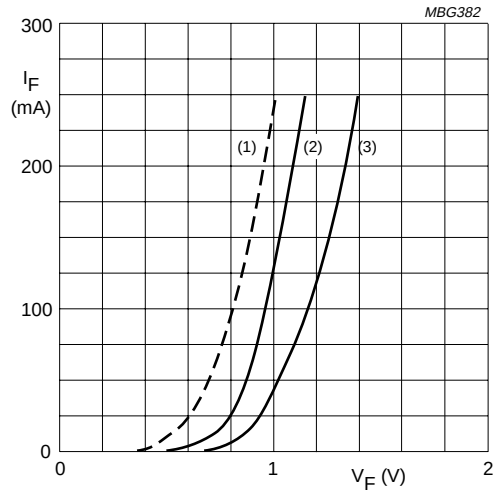
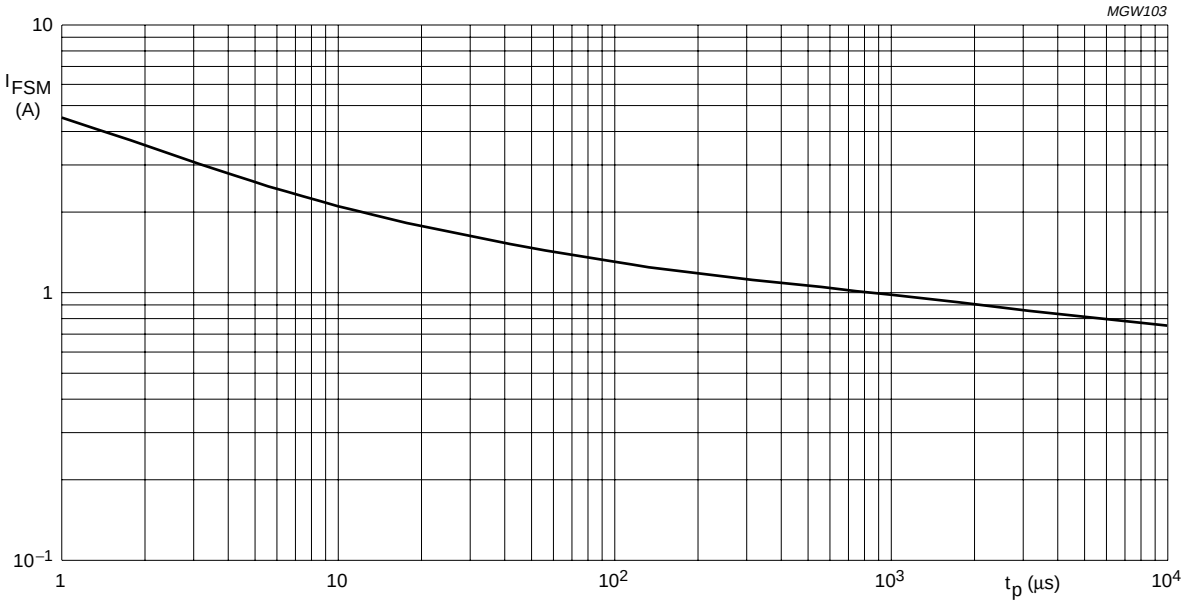


Fig.2 Maximum permissible continuous forward current as a function of soldering point temperature.



(1) T_j = 150 °C; typical values.
(2) T_j = 25 °C; typical values.
(3) T_j = 25 °C; maximum values.

Fig.3 Forward current as a function of forward voltage.



Based on square wave currents.
T_j = 25 °C prior to surge.

Fig.4 Maximum permissible non-repetitive peak forward current as a function of pulse duration.

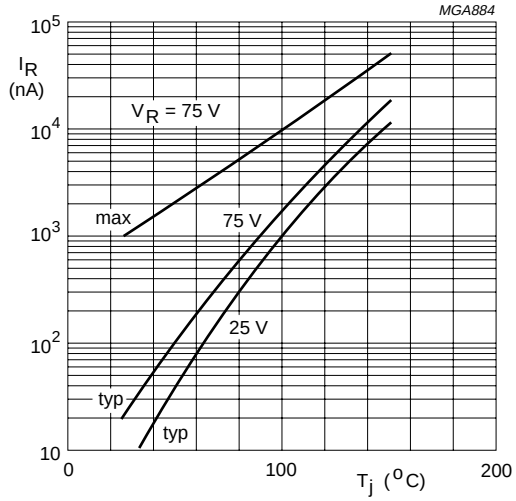
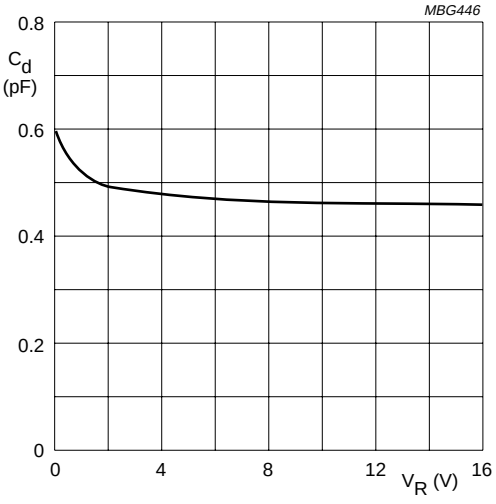
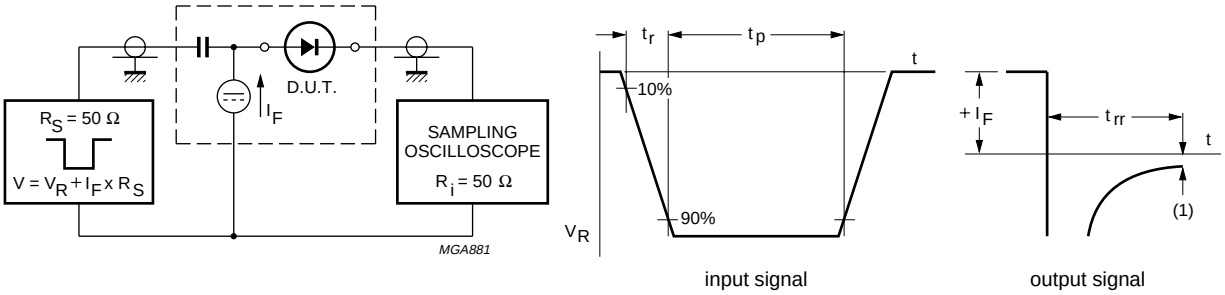


Fig.5 Reverse current as a function of junction temperature.



f = 1 MHz; T_j = 25 °C.

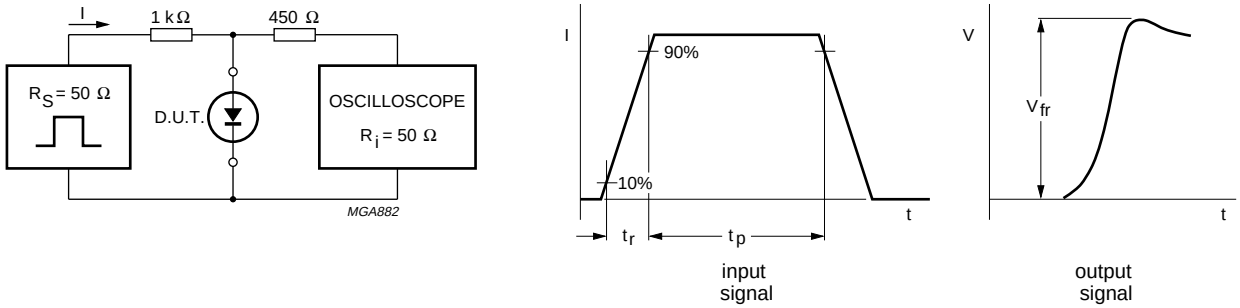
Fig.6 Diode capacitance as a function of reverse voltage; typical values.



(1) I_R = 1 mA.

Input signal: reverse pulse rise time t_r = 0.6 ns; reverse voltage pulse duration t_p = 100 ns; duty factor δ = 0.05.
Oscilloscope: rise time t_r = 0.35 ns

Fig.7 Reverse recovery voltage test circuit and waveforms.

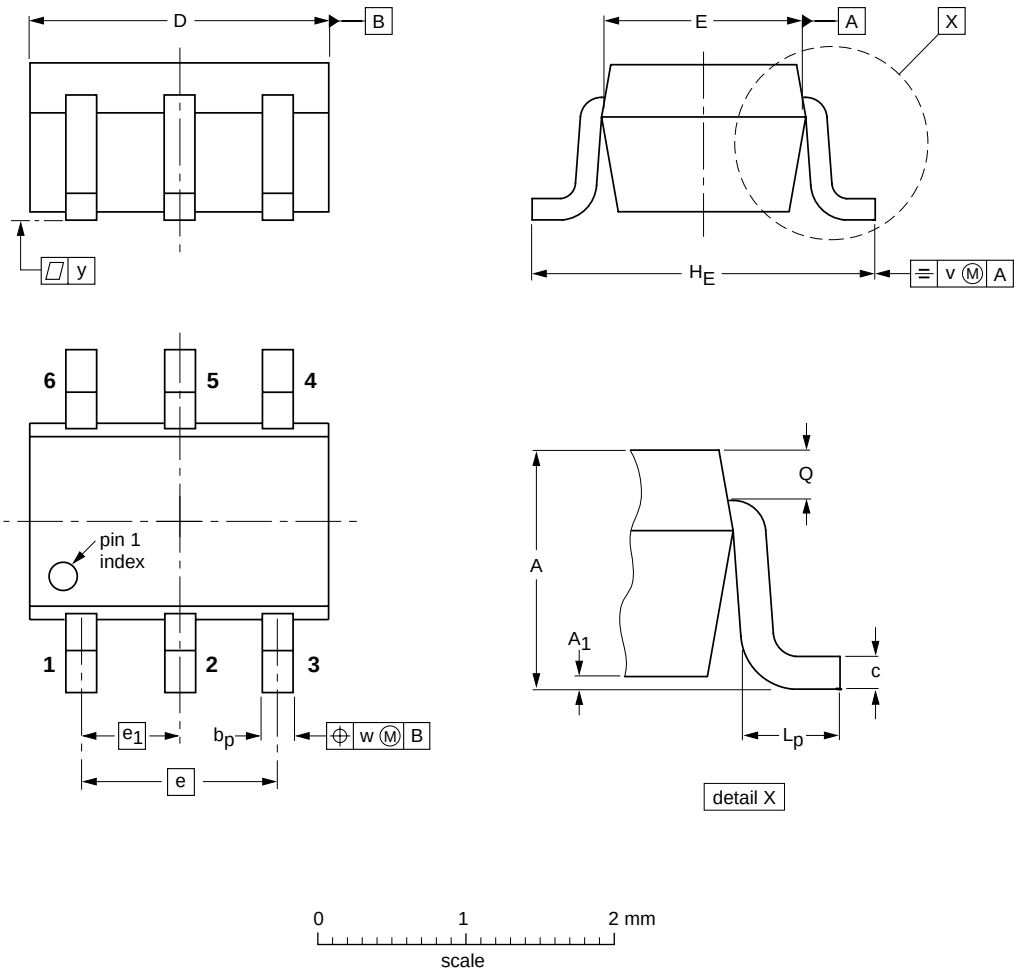


Input signal: forward pulse rise time t_r = 20 ns; forward current pulse duration $t_p \geq$ 100 ns; duty factor δ ≤ 0.005.

Fig.8 Forward recovery voltage test circuit and waveforms.

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads **SOT363**



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	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT363			SC-88			97-02-28

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LEVEL	DATA SHEET STATUS(1)	PRODUCT STATUS(2)(3)	DEFINITION
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