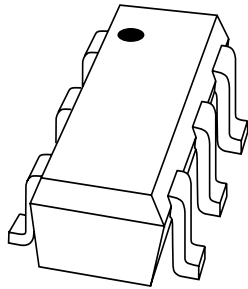


# DATA SHEET



## **PUMX1** NPN general purpose double transistor

Preliminary specification  
Supersedes data of 1997 Jul 09

1999 Apr 14

# NPN general purpose double transistor

# PUMX1

### FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 40 V)
- Reduces number of components and boardspace.

### APPLICATIONS

- General purpose switching and amplification.

### DESCRIPTION

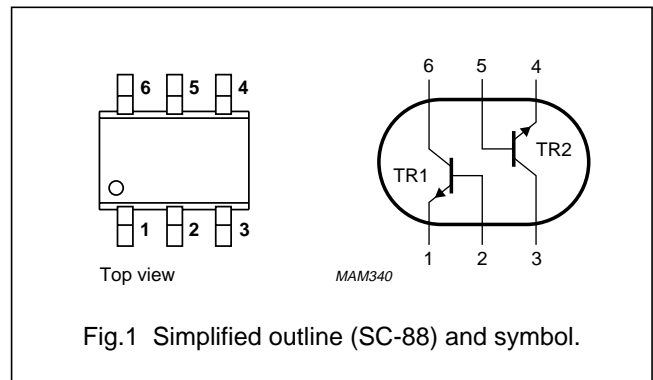
Two independently operating NPN transistors in an SC-88 plastic package. PNP complement: PUMT1.

### MARKING

TYPE NUMBER	MARKING CODE
PUMX1	ZtZ

### PINNING

PIN	DESCRIPTION
1, 4	emitter TR1; TR2
2, 5	base TR1; TR2
3, 6	collector TR2; TR1



### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per transistor</b>					
$V_{CBO}$	collector-base voltage	open emitter	–	50	V
$V_{CEO}$	collector-emitter voltage	open base	–	40	V
$V_{EBO}$	emitter-base voltage	open collector	–	5	V
$I_C$	collector current (DC)		–	100	mA
$I_{CM}$	peak collector current		–	200	mA
$I_{BM}$	peak base current		–	200	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$	–	200	mW
$T_{stg}$	storage temperature		–65	+150	$^\circ\text{C}$
$T_j$	junction temperature		–	150	$^\circ\text{C}$
$T_{amb}$	operating ambient temperature		–65	+150	$^\circ\text{C}$
<b>Per device</b>					
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$ ; note 1	–	300	mW

### Note

1. Device mounted on an FR4 printed-circuit board.

## NPN general purpose double transistor

PUMX1

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
<b>Per device</b>				
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	416	K/W

**Note**

1. Device mounted on an FR4 printed-circuit board.

## CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
<b>Per transistor</b>					
$I_{CBO}$	collector cut-off current	$I_E = 0; V_{CB} = 30\text{ V}$	–	100	nA
		$I_E = 0; V_{CB} = 30\text{ V}; T_j = 150\text{ °C}$	–	10	$\mu\text{A}$
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = 4\text{ V}$	–	100	nA
$h_{FE}$	DC current gain	$I_C = 1\text{ mA}; V_{CE} = 6\text{ V}$	120	–	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 50\text{ mA}; I_B = 5\text{ mA}; \text{note 1}$	–	200	mV
$C_c$	collector capacitance	$I_E = i_e = 0; V_{CB} = 12\text{ V}; f = 1\text{ MHz}$	–	1.5	pF
$f_T$	transition frequency	$I_C = 2\text{ mA}; V_{CE} = 12\text{ V}; f = 100\text{ MHz}$	100	–	MHz

**Note**

1. Pulse test:  $t_p \leq 300\ \mu\text{s}; \delta \leq 0.02$ .

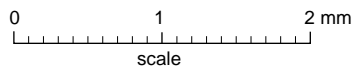
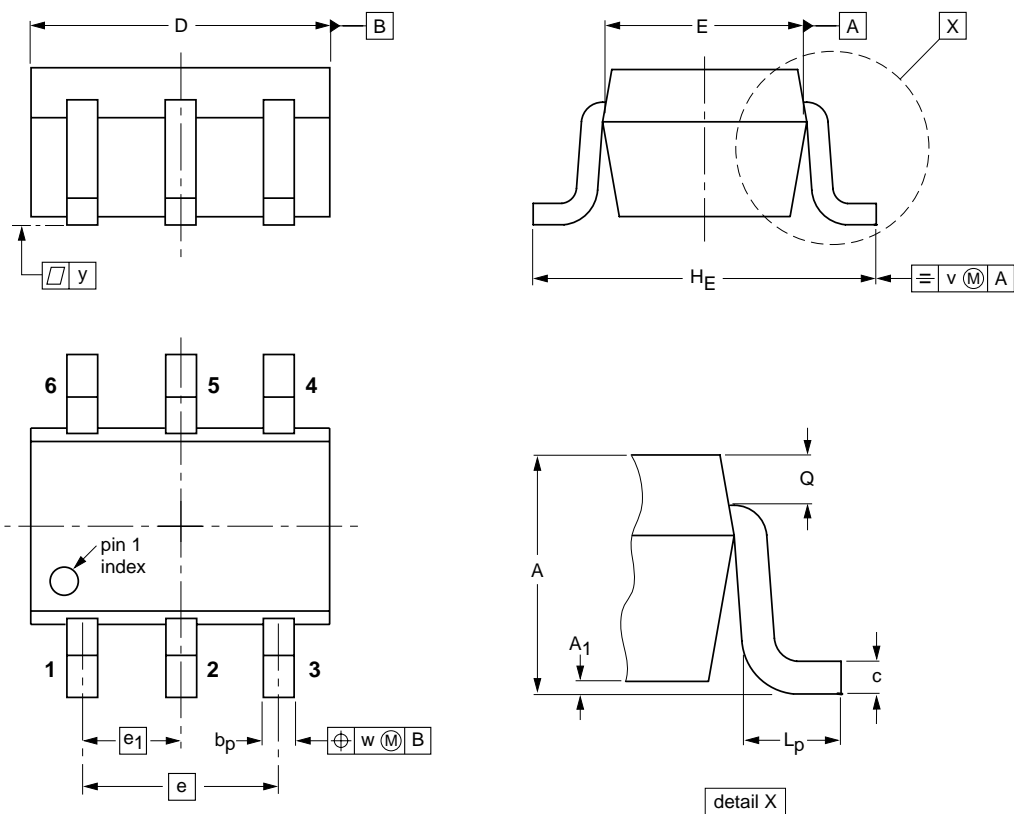
NPN general purpose double transistor

PUMX1

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT363



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	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

## NPN general purpose double transistor

PUMX1

**DEFINITIONS**

<b>Data sheet status</b>	
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.
<b>Limiting values</b>	
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.	
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NPN general purpose double transistor

PUMX1

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**NOTES**

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**NOTES**

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Printed in The Netherlands

115002/00/03/pp8

Date of release: 1999 Apr 14

Document order number: 9397 750 05633

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