

PMSTA55; PMSTA56

500 mA PNP general-purpose transistors Rev. 05 — 1 February 2010

Product data sheet

1. **Product profile**

1.1 General description

PNP transistors in a SOT323 (SC-70) very small Surface-Mounted Device (SMD) plastic package.

Table 1. **Product overview**

Type number	Package		NPN complement
	NXP	JEITA	_
PMSTA55	SOT323	SC-70	PMSTA05
PMSTA56			PMSTA06

1.2 Features

- High current (max. 500 mA)
- Collector-emitter voltage:
 - ◆ 60 V (PMSTA55)
 - ◆ 80 V (PMSTA56)

1.3 Applications

Intended for telephony and professional communication equipment.

Pinning information 2.

Table 2 Pinning

Table 2.	Filling		
Pin	Description	Simplified outline	Graphic symbol
1	base		
2	emitter	3	3
3	collector		1—
		1	2
		1	006aab25!



3. Ordering information

Table 3. Ordering information

Type number	Package					
	Name	Description	Version			
PMSTA55	SC-70	plastic surface-mounted package; 3 leads	SOT323			
PMSTA56						

4. Marking

Table 4. Marking codes

Type number	Marking code ^[1]
PMSTA55	*2H
PMSTA56	*2G

^{[1] * = -:} made in Hong Kong

5. Limiting values

Table 5. Limiting values

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

Parameter	Conditions	Min	Max	Unit
collector-base voltage	open emitter			
PMSTA55		-	-60	V
PMSTA56		-	-80	V
collector-emitter voltage	open base			
PMSTA55		-	-60	V
PMSTA56		-	-80	V
emitter-base voltage	open collector	-	-4	V
collector current		-	-500	mA
peak collector current		-	-500	mA
peak base current		-	-500	mA
total power dissipation	$T_{amb} \le 25 ^{\circ}C$	<u>[1]</u> -	200	mW
junction temperature		-	150	°C
ambient temperature		-65	+150	°C
storage temperature		-65	+150	°C
	collector-base voltage PMSTA55 PMSTA56 collector-emitter voltage PMSTA55 PMSTA56 emitter-base voltage collector current peak collector current peak base current total power dissipation junction temperature ambient temperature	$ \begin{array}{c} \text{collector-base voltage} & \text{open emitter} \\ \hline PMSTA55 \\ \hline PMSTA56 \\ \hline \\ \text{collector-emitter voltage} & \text{open base} \\ \hline \\ PMSTA55 \\ \hline \\ PMSTA56 \\ \hline \\ \text{emitter-base voltage} & \text{open collector} \\ \hline \\ \text{collector current} \\ \hline \\ \text{peak collector current} \\ \hline \\ \text{peak base current} \\ \hline \\ \text{total power dissipation} & T_{amb} \leq 25 \ ^{\circ}\text{C} \\ \hline \\ \text{junction temperature} \\ \hline \\ \text{ambient temperature} \\ \hline \end{array} $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	collector-base voltage open emitter PMSTA5560 PMSTA5680 collector-emitter voltage open base $\begin{array}{c ccccccccccccccccccccccccccccccccccc$

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

^{* =} p: made in Hong Kong

^{* =} t: made in Malaysia

^{* =} W: made in China

6. Thermal characteristics

Table 6. 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> -	-	625	K/W

^[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

7. Characteristics

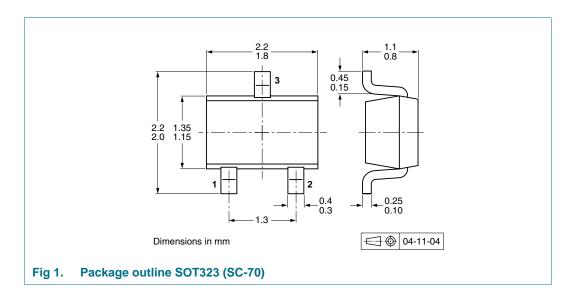
Table 7. Characteristics

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

$\begin{split} & I_{CBO} \\ & E_{CUTRent} \\ & PMSTA55 \\ & V_{CB} = -60 \text{ V; } I_E = 0 \text{ A} \\ & PMSTA56 \\ & V_{CB} = -80 \text{ V; } I_E = 0 \text{ A} \\ & V_{CB} = -80 \text{ V; } I_E = 0 \text{ A} \\ & V_{CB} = -4 \text{ V; } I_{C} = 0 \text{ A} \\ & V_{CE} = -1 \text{ V; } \\ & V_{CE} $	amb - 20	C diffess offerwise sp	ecinea.				
	Symbol	Parameter	Conditions	Min	Тур	Max	Unit
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	I _{CBO}						
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		PMSTA55	$V_{CB} = -60 \text{ V}; I_E = 0 \text{ A}$	-	-	-100	nA
		PMSTA56	$V_{CB} = -80 \text{ V}; I_E = 0 \text{ A}$	-	-	-100	nA
$I_{C} = -10 \text{ mA}$ $V_{CE} = -1 \text{ V};$ $I_{C} = -100 \text{ mA}$ $V_{CEsat} \text{collector-emitter} I_{C} = -100 \text{ mA};$ $V_{BE} \text{base-emitter voltage} I_{C} = -100 \text{ mA};$ $V_{CE} = -1 \text{ V}$ $V_{CE} = -1 \text{ V};$ $V_{CE} = -1 \text{ V};$ $V_{CE} = -1 \text{ V};$ $V_{CE} = -100 \text{ mA};$	I _{EBO}		$V_{EB} = -4 \text{ V}; I_C = 0 \text{ A}$	-	-	-500	nA
$\label{eq:VCEsat} \begin{array}{c} I_{C} = -100 \text{ mA} \\ \\ V_{CEsat} & \text{collector-emitter} \\ \text{saturation voltage} & I_{C} = -100 \text{ mA}; \\ I_{B} = -10 \text{ mA} \\ \\ V_{BE} & \text{base-emitter voltage} & I_{C} = -100 \text{ mA}; \\ V_{CE} = -1 \text{ V} \\ \\ I_{C} = -100 \text{ mA}; \\ \\ \end{array} \begin{array}{c} - & - & -1.2 \\ \text{mV} \\ \\ \hline \end{array}$	h _{FE}	DC current gain	0_ /	100	-	-	
$\label{eq:saturation voltage} \begin{split} & saturation \ voltage & I_B = -10 \ mA \\ & V_{BE} & base-emitter \ voltage & I_C = -100 \ mA; \\ & V_{CE} = -1 \ V \\ & f_T & transition \ frequency & V_{CE} = -1 \ V; \\ & I_C = -100 \ mA; \end{split} \qquad \begin{array}{c} - & - & -1.2 \ mV \\ & 50 \ - & - \ MH \\ & & & & & & & & & & & & & & & & & & $			OL ,	11 100	-	-	
$V_{CE} = -1 \ V$ $f_{T} \qquad \text{transition frequency} \qquad V_{CE} = -1 \ V; \qquad \qquad 50 \qquad - \qquad MH$ $I_{C} = -100 \ mA;$	V _{CEsat}		,	-	-	-250	mV
$I_{C} = -100 \text{ mA};$	V_{BE}	base-emitter voltage	,	-	-	-1.2	mV
	f _T	transition frequency	$I_C = -100 \text{ mA};$	50	-	-	MHz

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

8. Package outline



9. Packing information

Table 8. Packing methods

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

Type number	Package	Description	Packing quantity	
			3000	10000
PMSTA55	SOT323	3 4 mm pitch, 8 mm tape and reel	-115	-135
PMSTA56				

[1] For further information and the availability of packing methods, see <u>Section 12</u>.

10. Revision history

Table 9. **Revision history**

Document ID	Release date	Data sheet status	Change notice	Supersedes		
PMSTA55_56_5	20100201	Product data sheet	-	PMSTA55_56_N_4		
Modifications:	 The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. 					
	 Legal texts have been adapted to the new company name where appropriate. 					
	 Section 1 "I 	Product profile": amended				
	 Table 2 "Pir 	nning": amended				
	 Section 3 "Ordering information": added 					
	Section 4 "Marking": amended					
	• Figure 1: superseded by minimized package outline drawing					
	 Section 9 "Packing information": added 					
	Section 11	"Legal information": updated	b			
PMSTA55_56_N_4	20080117	Product data sheet	-	PMSTA55_56_3		
PMSTA55_56_3	19990422	Product specification	-	PMSTA55_56_2		
PMSTA55_56_2	19980721	Product specification	-	PMSTA55_56_1		
PMSTA55_56_1	19970602	Product specification	-	-		

11. Legal information

11.1 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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12. Contact information

For more information, please visit: http://www.nxp.com

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