



PRMB11-Q

50 V, 100 mA PNP/PNP resistor-equipped double transistor;
R1 = 10 kΩ, R2 = 10 kΩ

4 August 2025

Product data sheet

1. General description

PNP/PNP Resistor-Equipped double Transistors (RET) in an ultra small DFN1412-6 (SOT1268) leadless Surface-Mounted Device (SMD) plastic package.

NPN/NPN complement: PRMH11-Q

NPN/PNP complement: PRMD3-Q

2. Features and benefits

- 100 mA output current capability
- Built-in bias resistors
- Simplifies circuit design
- Reduces component count
- Reduces pick and place costs
- Low package height of 0.5 mm
- Qualified according to AEC-Q101 and recommended for use in automotive applications

3. Applications

- Digital applications
- Cost-saving alternative to BC847/BC857 series in digital applications
- Control of IC inputs
- Switching loads

4. Quick reference data

Table 1. Quick reference data

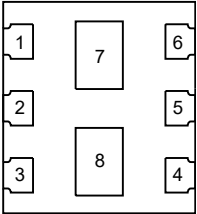
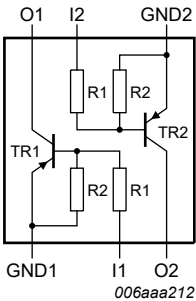
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per transistor							
V _{CEO}	collector-emitter voltage	open base		-	-	-50	V
I _O	output current			-	-	-100	mA
h _{FE}	DC current gain	V _{CE} = -5 V; I _C = -5 mA; T _{amb} = 25 °C		30	-	-	
R1	bias resistor 1 (input)	T _{amb} = 25 °C	[1]	7	10	13	kΩ
R2/R1	bias resistor ratio		[1]	0.8	1	1.2	

[1] See section "Test information" for resistor calculation and test conditions.

50 V, 100 mA PNP/PNP resistor-equipped double transistor; R1 = 10 kΩ, R2 = 10 kΩ

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	GND1	GND (emitter) TR1	 Transparent top view DFN1412-6 (SOT1268)	 006aaa212
2	I1	input (base) TR1		
3	O2	output (collector) TR2		
4	GND2	GND (emitter) TR2		
5	I2	input (base) TR2		
6	O1	output (collector) TR1		
7	O1	output (collector) TR1		
8	O2	output (collector) TR2		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PRMB11-Q	DFN1412-6	plastic, thin small outline package; no leads; 6 terminals; 1.4 mm x 1.2 mm x 0.47 mm body	SOT1268

7. Marking

Table 4. Marking codes

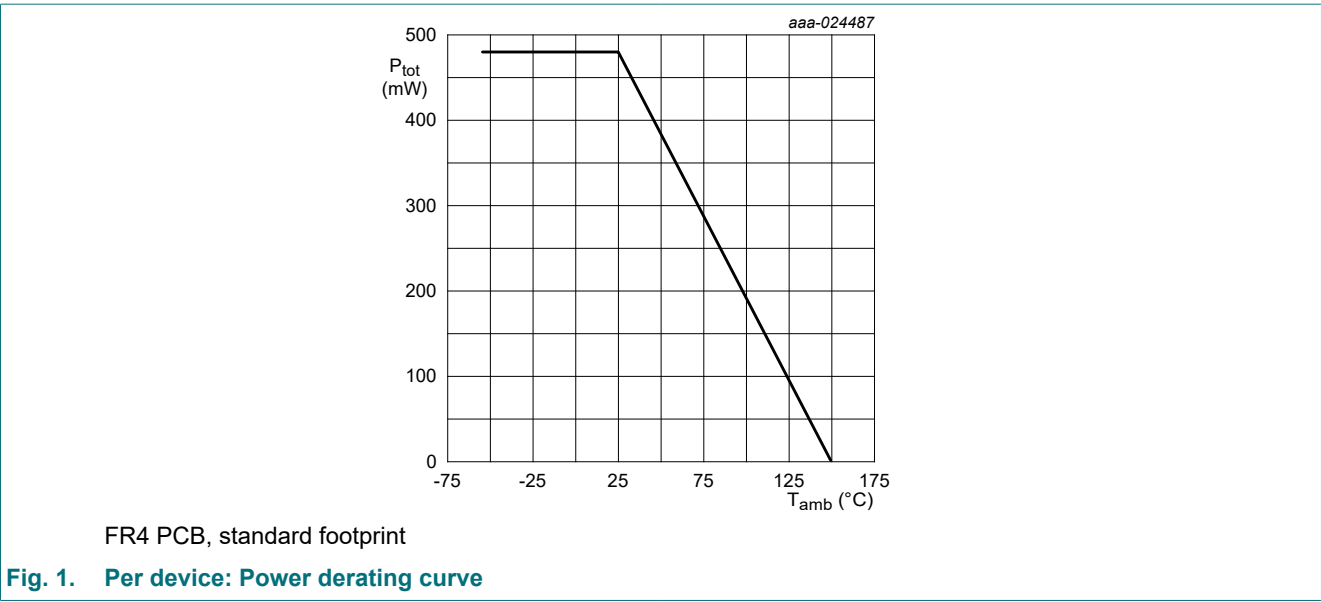
Type number	Marking code
PRMB11-Q	C5

8. Limiting values

Table 5. Limiting values
In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions		Min	Max	Unit
Per transistor						
V _{CBO}	collector-base voltage	open emitter		-	-50	V
V _{CEO}	collector-emitter voltage	open base		-	-50	V
V _{EBO}	emitter-base voltage	open collector		-	-10	V
V _I	input voltage	positive		-	10	V
		negative		-	-40	V
I _O	output current			-	-100	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	325	mW
Per device						
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	[1]	-	480	mW
T _j	junction temperature			-	150	°C
T _{amb}	ambient temperature			-55	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.

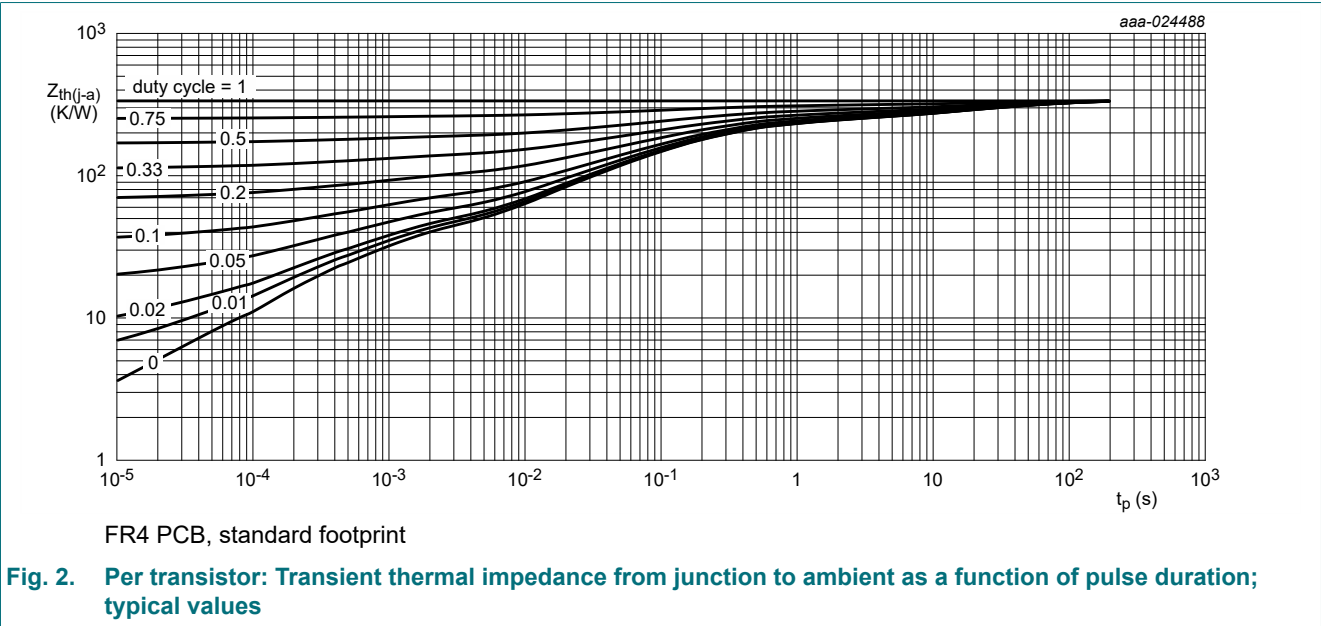


9. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per transistor							
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	385	K/W
Per device							
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	261	K/W

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

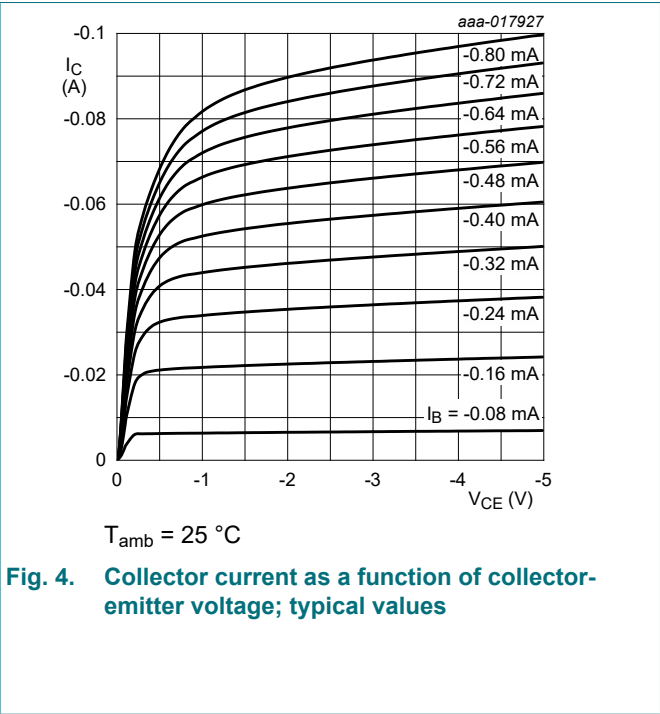
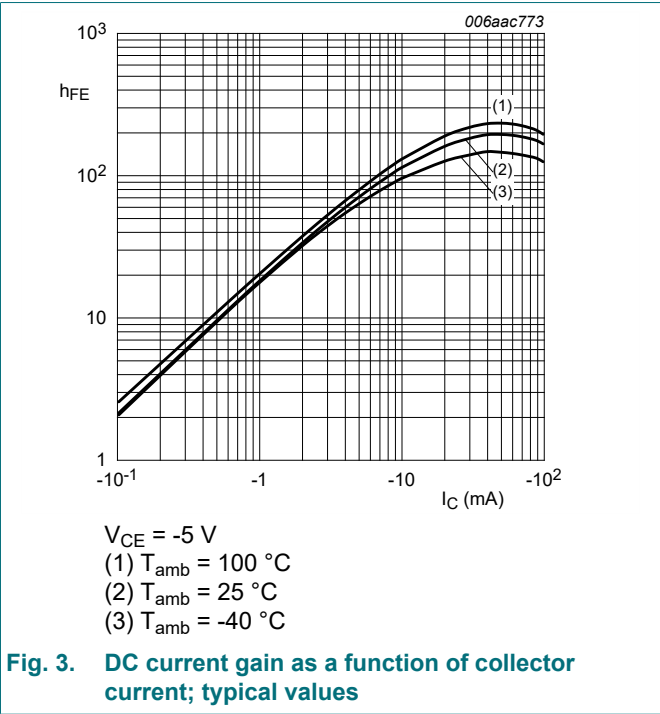


10. Characteristics

Table 7. Characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per transistor							
I _{CBO}	collector-base cut-off current	V _{CB} = -50 V; I _E = 0 A; T _{amb} = 25 °C		-	-	-100	nA
I _{CEO}	collector-emitter cut-off current	V _{CE} = -30 V; I _B = 0 A; T _{amb} = 25 °C		-	-	-100	nA
		V _{CE} = -30 V; I _B = 0 A; T _j = 150 °C		-	-	-5	μA
I _{EBO}	emitter-base cut-off current	V _{EB} = -5 V; I _C = 0 A; T _{amb} = 25 °C		-	-	-400	μA
h _{FE}	DC current gain	V _{CE} = -5 V; I _C = -5 mA; T _{amb} = 25 °C		30	-	-	
V _{CEsat}	collector-emitter saturation voltage	I _C = -10 mA; I _B = -0.5 mA; T _{amb} = 25 °C		-	-	-150	mV
V _{I(off)}	off-state input voltage	V _{CE} = -5 V; I _C = -100 μA; T _{amb} = 25 °C		-	-1.1	-0.8	V
V _{I(on)}	on-state input voltage	V _{CE} = -0.3 V; I _C = -10 mA; T _{amb} = 25 °C		-2.5	-1.8	-	V
R1	bias resistor 1 (input)	T _{amb} = 25 °C	[1]	7	10	13	kΩ
R2/R1	bias resistor ratio		[1]	0.8	1	1.2	
C _c	collector capacitance	V _{CB} = -10 V; I _E = 0 A; i _e = 0 A; f = 1 MHz; T _{amb} = 25 °C		-	-	3	pF
f _T	transition frequency	V _{CE} = -5 V; I _C = -10 mA; f = 100 MHz; T _{amb} = 25 °C	[2]	-	180	-	MHz

[1] See section "Test information" for resistor calculation and test conditions.
[2] Characteristics of built-in transistor



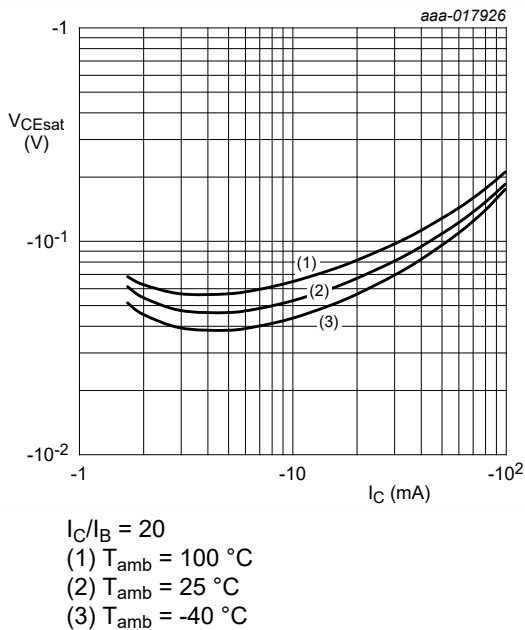


Fig. 5. Collector-emitter saturation voltage as a function of collector current; typical values

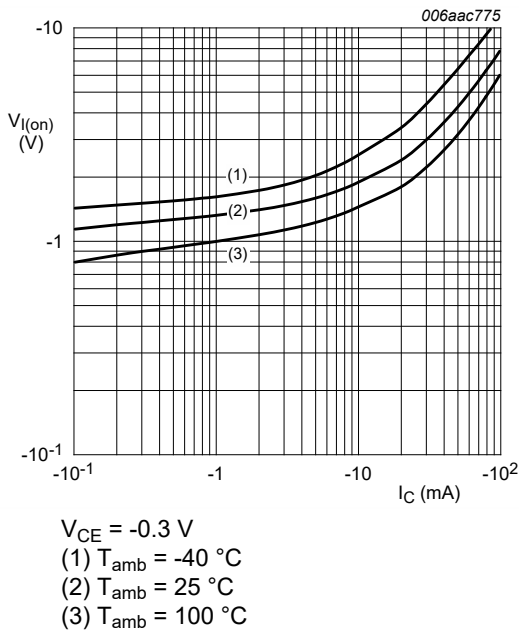


Fig. 6. On-state input voltage as a function of collector current; typical values

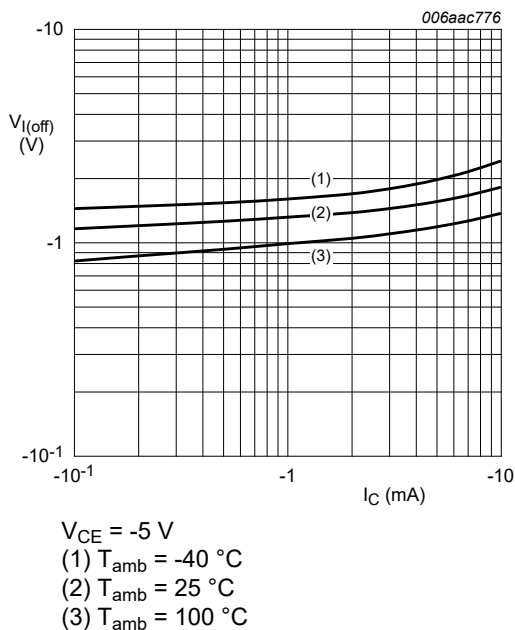


Fig. 7. Off-state input voltage as a function of collector current; typical values

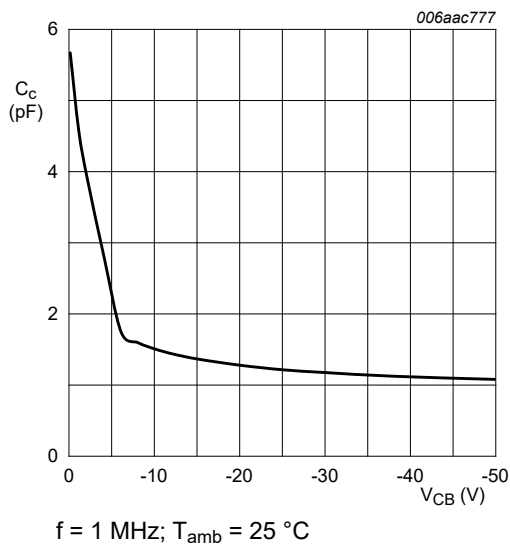
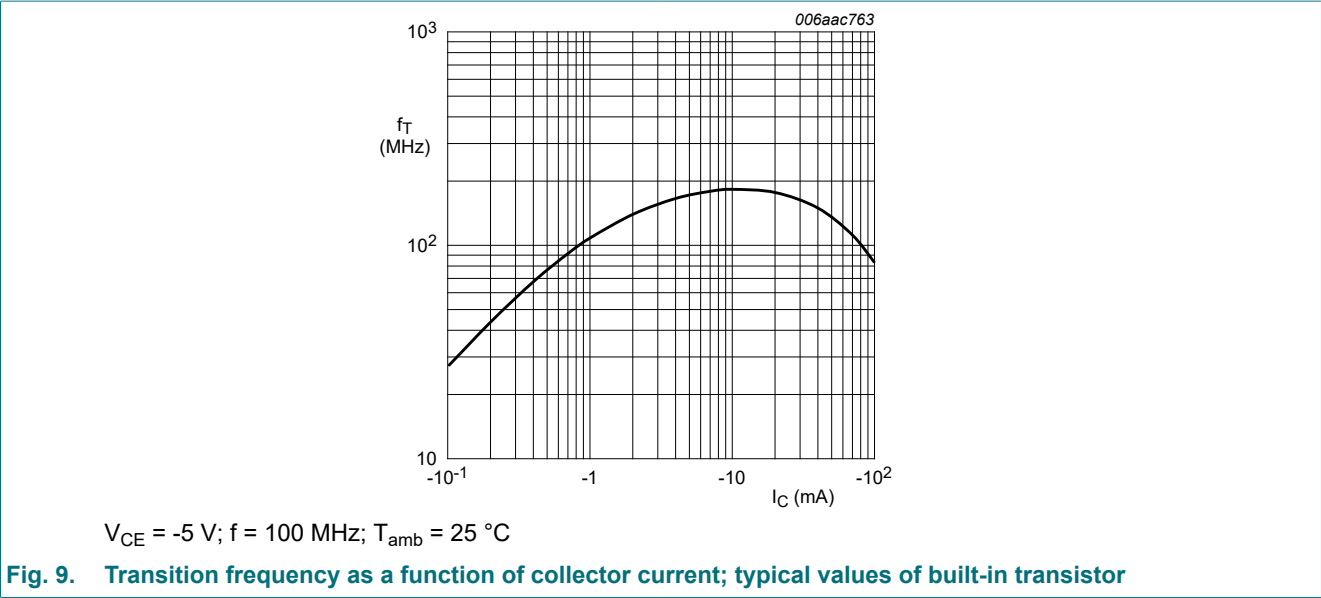


Fig. 8. Collector capacitance as a function of collector-base voltage; typical values

50 V, 100 mA PNP/PPN resistor-equipped double transistor; R1 = 10 kΩ, R2 = 10 kΩ



11. Test information

Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - *Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

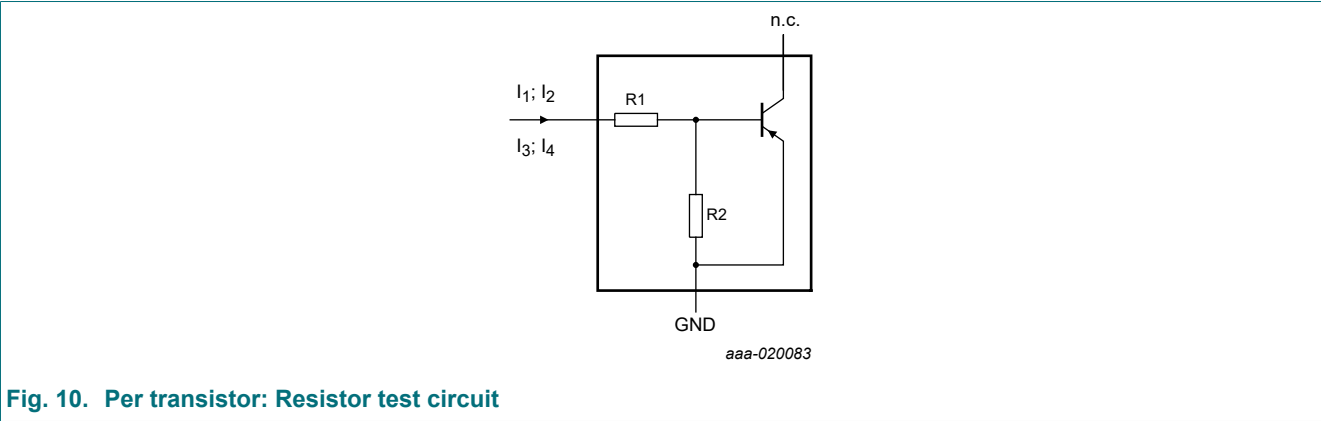
Resistor calculation

- Calculation of bias resistor 1 (R1)

$$R_1 = \frac{V(I_2) - V(I_1)}{I_2 - I_1}$$

- Calculation of bias resistor ratio (R2/R1)

$$\frac{R_2}{R_1} = \frac{V(I_4) - V(I_3)}{R_1 \cdot (I_4 - I_3)} - 1$$



Resistor test conditions

Table 8. Resistor test conditions

Product	R1 (kΩ)	R2 (kΩ)	Test conditions			
			I ₁	I ₂	I ₃	I ₄
PRMH11-Q	10	10	-350 μA	-450 μA	350 μA	450 μA

12. Package outline

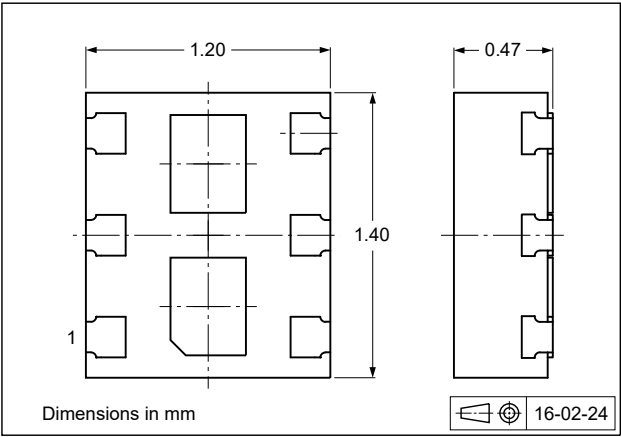


Fig. 11. Package outline DFN1412-6 (SOT1268)

13. Soldering

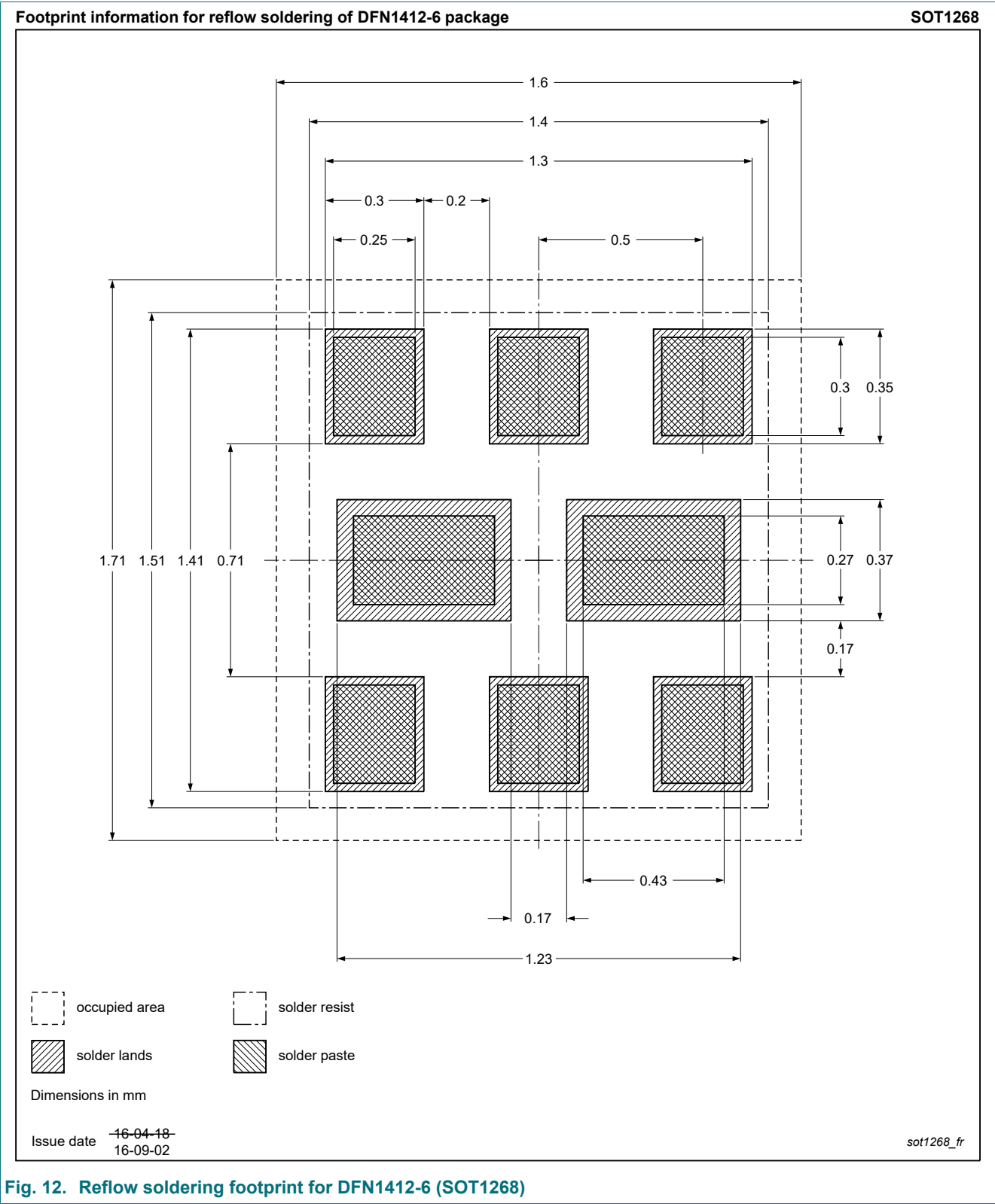


Fig. 12. Reflow soldering footprint for DFN1412-6 (SOT1268)

50 V, 100 mA PNP/PNP resistor-equipped double transistor; R1 = 10 kΩ, R2 = 10 kΩ

14. Revision history

Table 9. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PRMB11-Q v.1	20250804	Product data sheet	-	-

15. Legal information

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".
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Date of release: 4 August 2025