



PUMB11

50 V, 100 mA PNP/PNP resistor-equipped double transistors;
R1 = 10 k Ω , R2 = 10 k Ω

22 July 2026

Product data sheet

1. General description

PNP/PNP double Resistor-Equipped Transistor (RET) in a very small SOT363-3 (SC-88) Surface-Mounted Device (SMD) plastic package.

NPN/PNP complement: PUMD3

NPN/NPN complement: PUMH11

2. Features and benefits

- 100 mA output current capability
- Built-in bias resistors
- Simplifies circuit design
- Reduces component count
- Reduces pick and place costs

3. Applications

- Low current peripheral drivers
- Control of IC inputs
- Replaces general-purpose transistors in digital applications

4. Quick reference data

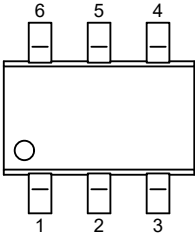
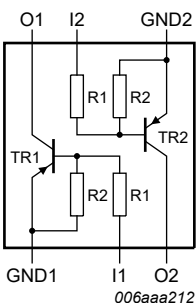
Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per transistor						
V _{CEO}	collector-emitter voltage	open base	-	-	-50	V
I _O	output current		-	-	-100	mA
R1	bias resistor 1 (input)	[1]	7	10	13	k Ω
R2/R1	bias resistor ratio	[1]	0.8	1	1.2	

[1] See "Section 11: Test information" for resistor calculation and test conditions.

5. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	GND1	GND (emitter) TR1	 Transparent top view TSSOP6 (SOT363-3)	 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		

6. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
PUMB11	TSSOP6	Plastic surface-mounted package; 6 leads	SOT363-3

7. Marking

Table 4. Marking codes

Type number	Marking code[1]
PUMB11	B%1

[1] % = placeholder for manufacturing site code

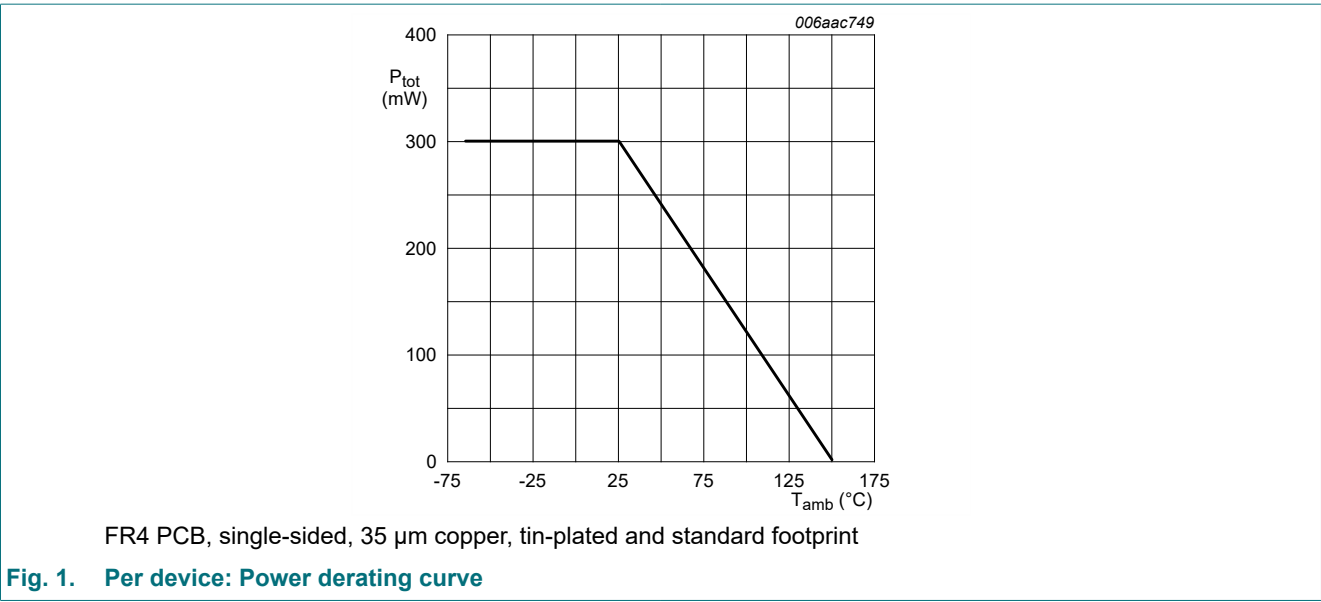
8. Limiting values

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]	-	200	mW
Per device						
P _{tot}	total power dissipation	T _{amb} = 25 °C	[1]	-	300	mW
T _j	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, 35 μm copper, tin-plated and standard footprint.

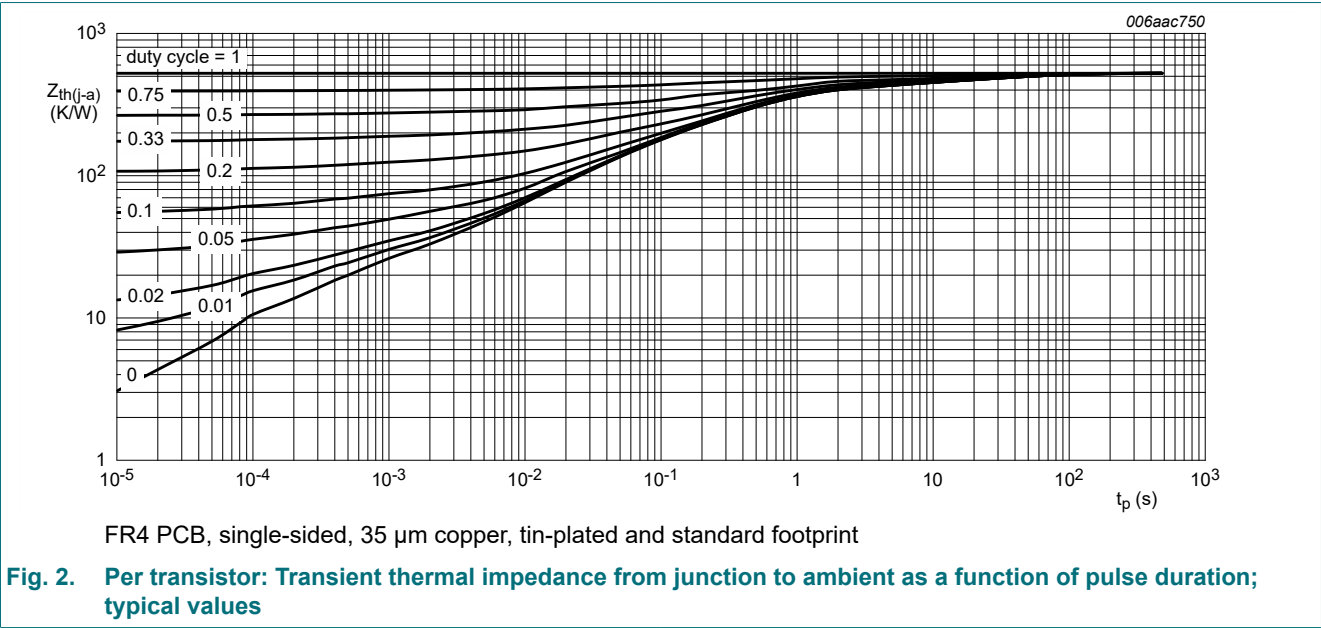


9. Thermal characteristics

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]	-	-	625	K/W
Per device							
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1]	-	-	417	K/W

[1] Device mounted on an FR4 PCB, single-sided, 35 μm copper, tin-plated and standard footprint.



10. Characteristics

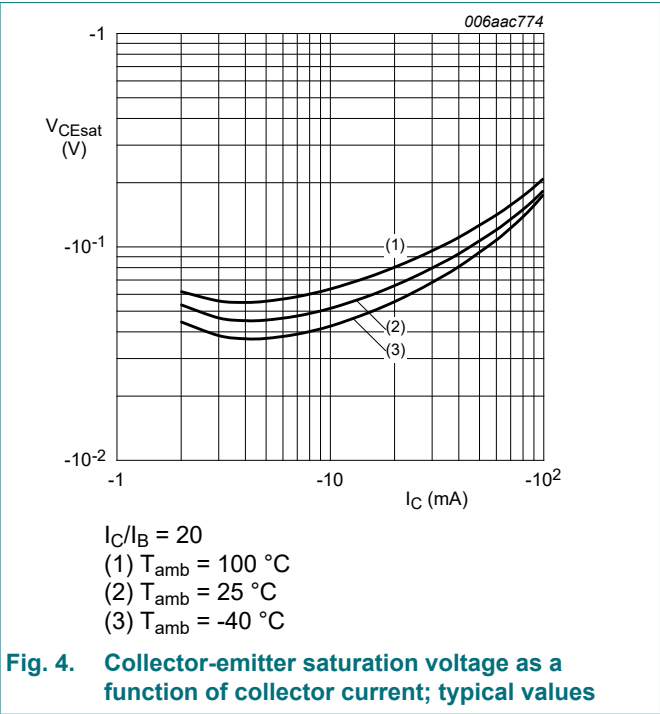
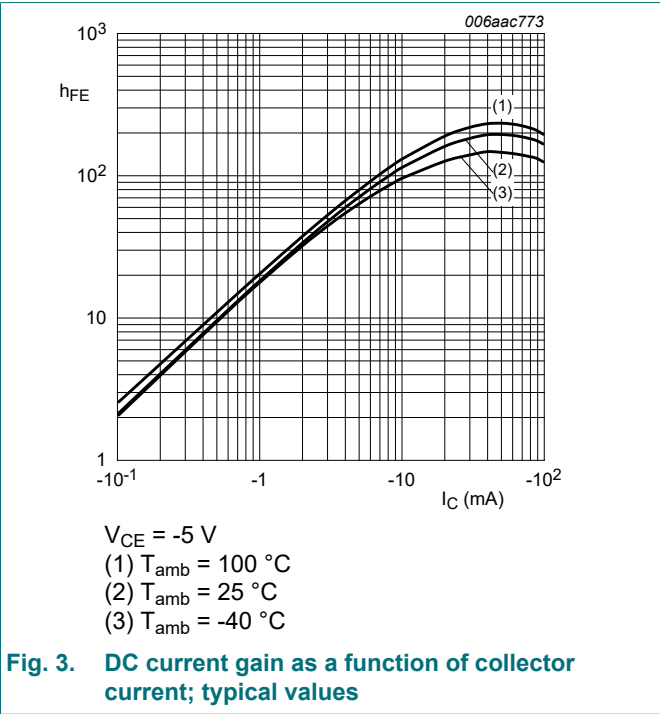
Table 7. Characteristics

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per transistor						
V _{(BR)CBO}	collector-base breakdown voltage	I _C = -100 μA; I _E = 0 A	-50	-	-	V
V _{(BR)CEO}	collector-emitter breakdown voltage	I _C = -2 mA; I _B = 0 A	-50	-	-	V
I _{CBO}	collector-base cut-off current	V _{CB} = -50 V; I _E = 0 A	-	-	-100	nA
I _{CEO}	collector-emitter cut-off current	V _{CE} = -30 V; I _B = 0 A	-	-	-1	μA
		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	-	-	-400	μA
h _{FE}	DC current gain	V _{CE} = -5 V; I _C = -5 mA	-30	-	-	
V _{CEsat}	collector-emitter saturation voltage	I _C = -10 mA; I _B = -0.5 mA	-	-	-100	mV
V _{I(off)}	off-state input voltage	V _{CE} = -5 V; I _C = -100 μA	-	-1.1	-0.8	V
V _{I(on)}	on-state input voltage	V _{CE} = -0.3 V; I _C = -10 mA	-2.5	-1.8	-	V
R1	bias resistor 1 (input)	[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	-	-	3	pF
f _T	transition frequency	V _{CE} = -5 V; I _C = -10 mA; f = 100 MHz	[2]	180	-	MHz

[1] See "Section 11: Test information" for resistor calculation and test conditions.

[2] Characteristics of built-in transistor



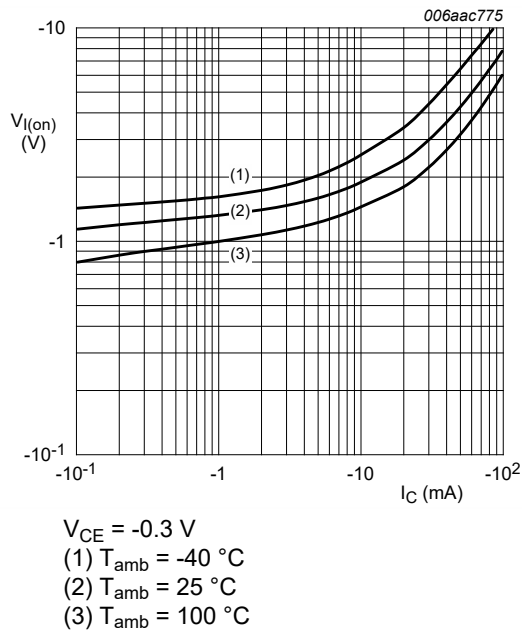


Fig. 5. On-state input voltage as a function of collector current; typical values

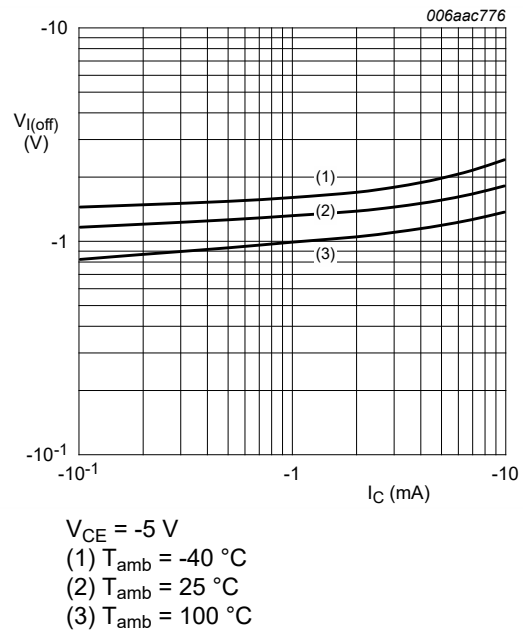


Fig. 6. Off-state input voltage as a function of collector current; typical values

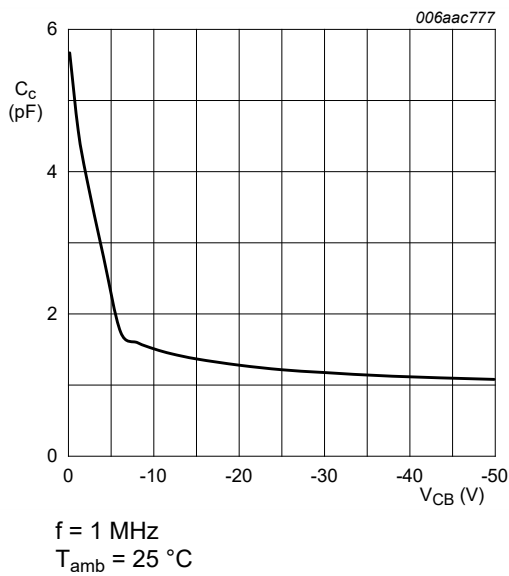


Fig. 7. Collector capacitance as a function of collector-base voltage; typical values

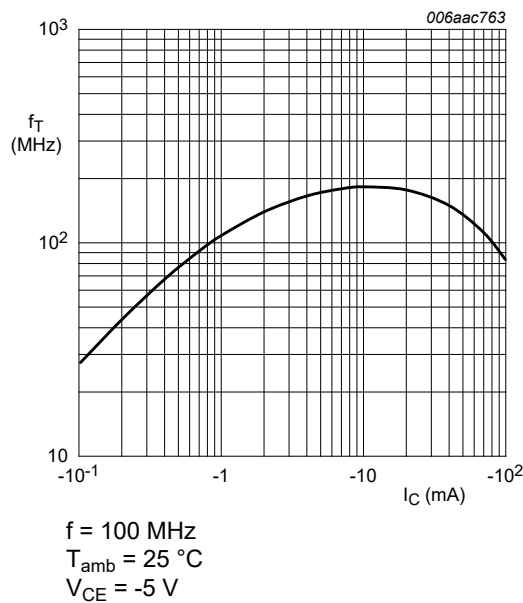


Fig. 8. Transition frequency as a function of collector current; typical values of built-in transistor

11. Test information

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)

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

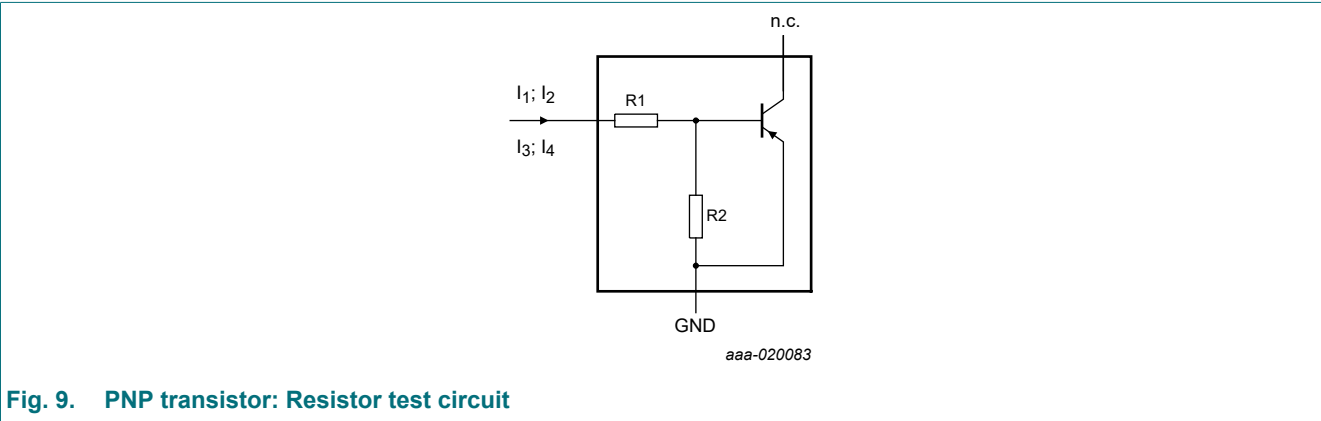


Fig. 9. PNP transistor: Resistor test circuit

Resistor test conditions

Table 8. Resistor test conditions

PUMB11	R1 (kΩ)	R2 (kΩ)	Test conditions			
			I ₁	I ₂	I ₃	I ₄
TR1 (PNP)	10	10	-350 μA	-450 μA	350 μA	450 μA
TR2 (PNP)	10	10	-350 μA	-450 μA	350 μA	450 μA

12. Package outline

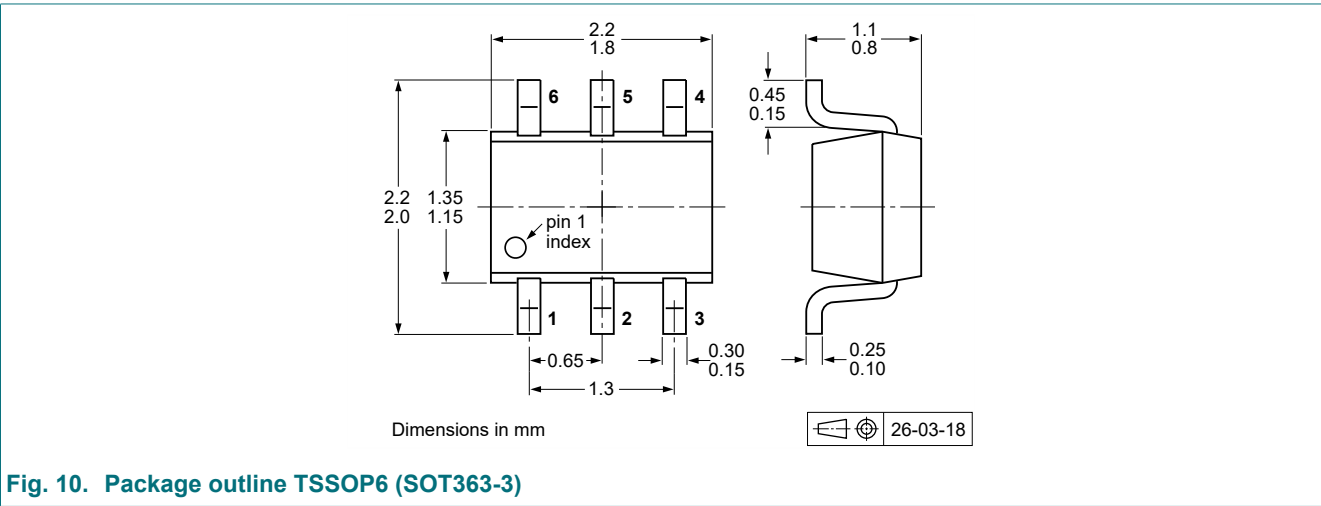


Fig. 10. Package outline TSSOP6 (SOT363-3)

13. Soldering

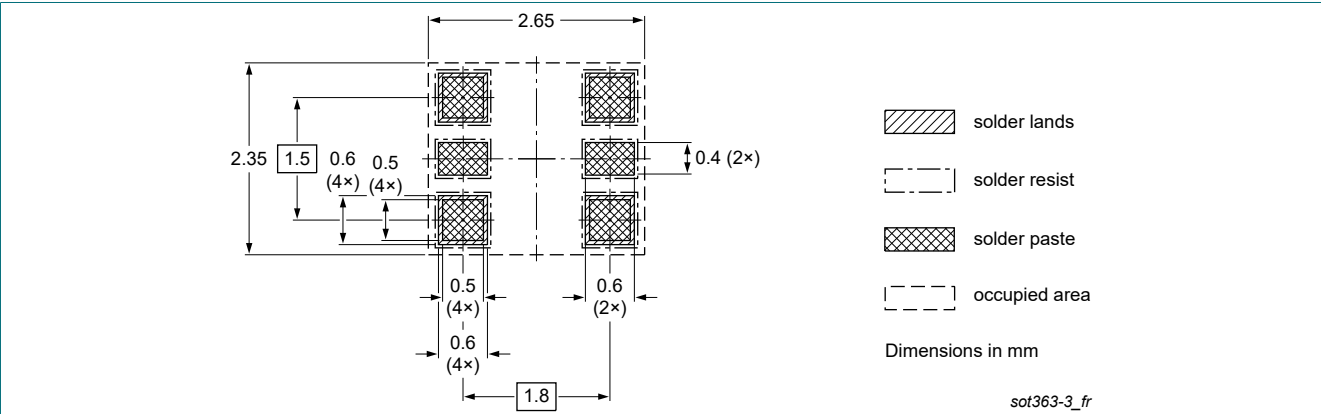


Fig. 11. Reflow soldering footprint for TSSOP6 (SOT363-3)

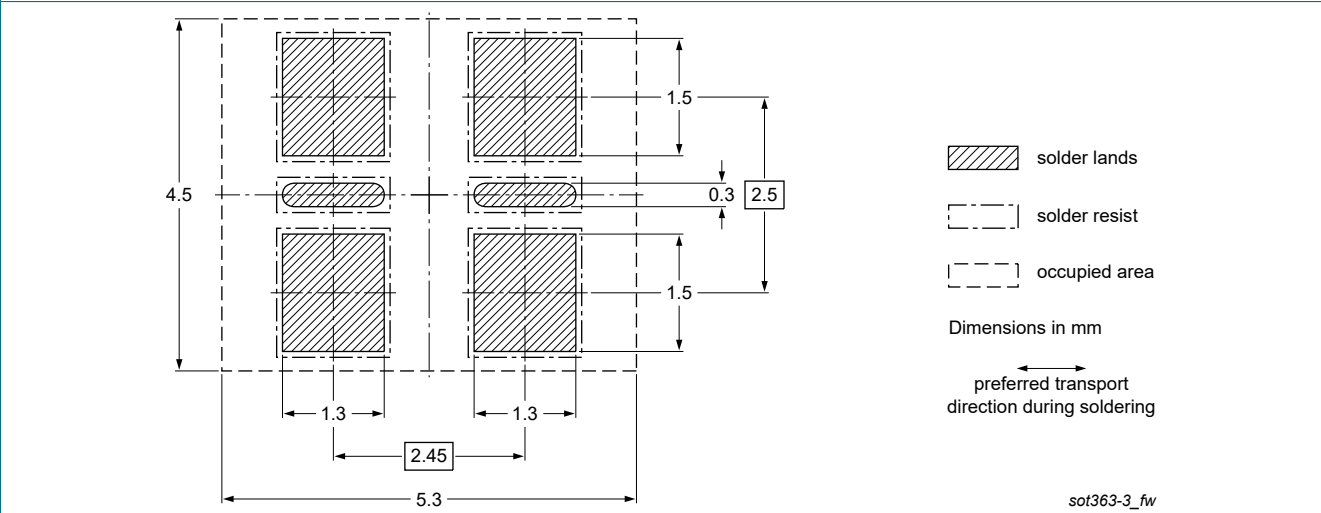


Fig. 12. Wave soldering footprint for TSSOP6 (SOT363-3)

14. Revision history

Table 9. Revision history

Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
PUMB11 v.6	20260722	Product data sheet	-	PUMB11 v.5
Modifications:	• Package changed from SOT363 to SOT363-3			
PUMB11 v.5	20221001	Product data sheet	-	PEMB11_PUMB11 v.4
PEMB11_PUMB11 v.4	20111130	Product data sheet	-	PEMB11_PUMB11 v.3
PEMB11_PUMB11 v.3	20031003	Product data sheet	-	PUMB11 v.2
PUMB11 v.2	20010913	Preliminary specification	-	PUMB11 v.1
PUMB11 v.1	20000808	Product specification	-	-

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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Contents

1. General description..... 1

2. Features and benefits..... 1

3. Applications..... 1

4. Quick reference data..... 1

5. Pinning information.....2

6. Ordering information.....2

7. Marking.....2

8. Limiting values..... 3

9. Thermal characteristics..... 4

10. Characteristics..... 5

11. Test information..... 7

12. Package outline..... 7

13. Soldering..... 8

14. Revision history.....9

15. Legal information.....10

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