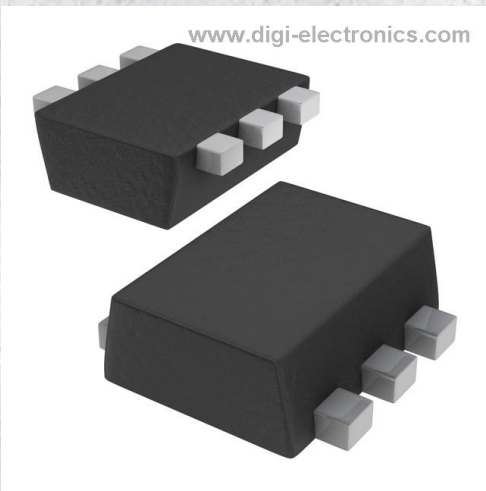
PEMH30,315 Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number	PEMH30,315-DG
Manufacturer	Nexperia USA Inc.
Manufacturer Product Number	PEMH30,315
Description	TRANS PREBIAS 2NPN 50V SOT666
Detailed Description	Pre-Biased Bipolar Transistor (BJT) 2 NPN - Pre-Biased (Dual) 50V 100mA 300mW Surface Mount SOT-666

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
PEMH30,315	Nexperia USA Inc.
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
2 NPN - Pre-Biased (Dual)	100mA
Voltage - Collector Emitter Breakdown (Max):	Resistor - Base (R1):
50V	2.2kOhms
Resistor - Emitter Base (R2):	DC Current Gain (hFE) (Min) @ Ic, Vce:
-	30 @ 20mA, 5V
Vce Saturation (Max) @ Ib, Ic:	Current - Collector Cutoff (Max):
150mV @ 500µA, 10mA	1µA
Frequency - Transition:	Power - Max:
-	300mW
Mounting Type:	Package / Case:
Surface Mount	SOT-563, SOT-666
Supplier Device Package:	Base Product Number:
SOT-666	PEMH30

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0095	

PEMH30; PUMH30

NPN/NPN double resistor-equipped transistors; R1 = 2.2 kΩ, R2 = open

Rev. 01 — 28 March 2006 Product data sheet

1. Product profile

1.1 General description

NPN/NPN double Resistor-Equipped Transistors (RET) in Surface Mounted Device (SMD) plastic packages.

Table 1. Product overview

Type number	Package		NPN/PNP complement	PNP/PNP complement
	Philips	JEITA		
PEMH30	SOT666	-	PEMD30	PEMB30
PUMH30	SOT363	SC-88	PUMD30	PUMB30

1.2 Features

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

1.3 Applications

- Low current peripheral driver
- Control of IC inputs
- Cost-saving alternative for BC847BS and BC847BV

1.4 Quick reference data

Table 2. Quick reference data

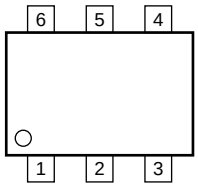
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per transistor						
V_{CEO}	collector-emitter voltage	open base	-	-	50	V
I_O	output current		-	-	100	mA
R1	bias resistor 1 (input)		1.54	2.2	2.86	kΩ

PHILIPS

2. Pinning information

Table 3. Pinning

Pin	Description	Simplified outline	Symbol
1	GND (emitter) TR1		
2	input (base) TR1		
3	output (collector) TR2		
4	GND (emitter) TR2		
5	input (base) TR2		
6	output (collector) TR1		



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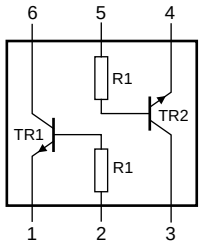


sym090

3. Ordering information

Table 4. Ordering information

Type number	Package		
	Name	Description	Version
PEMH30	-	plastic surface mounted package; 6 leads	SOT666
PUMH30	SC-88	plastic surface mounted package; 6 leads	SOT363

4. Marking

Table 5. Marking codes

Type number	Marking code[1]
PEMH30	2S
PUMH30	*B1

[1] * = -: made in Hong Kong
* = p: made in Hong Kong
* = t: made in Malaysia
* = W: made in China

5. Limiting values

Table 6. 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		-	5	V
I_O	output current			-	100	mA
I_{CM}	peak collector current	single pulse; $t_p \leq 1$ ms		-	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C				
	SOT363		[1]	-	200	mW
	SOT666		[1][2]	-	200	mW
Per device						
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C				
	SOT363		[1]	-	300	mW
	SOT666		[1][2]	-	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 copper, tin-plated and standard footprint.

[2] Reflow soldering is the only recommended soldering method.

6. Thermal characteristics

Table 7. Thermal characteristics

Symbol	Parameter	Conditions		Min	Typ	Max	Unit
Per transistor							
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air					
	SOT363		[1]	-	-	625	K/W
	SOT666		[1][2]	-	-	625	K/W
Per device							
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air					
	SOT363		[1]	-	-	416	K/W
	SOT666		[1][2]	-	-	416	K/W

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

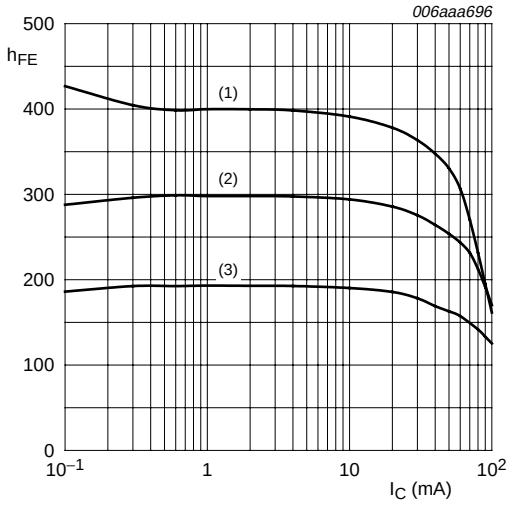
[2] Reflow soldering is the only recommended soldering method.

7. Characteristics

Table 8. Characteristics

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Per transistor						
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	-	-	50	µA
I_{EBO}	emitter-base cut-off current	V_{EB} = 5 V; I_C = 0 A	-	-	100	nA
h_{FE}	DC current gain	V_{CE} = 5 V; I_C = 20 mA	30	-	-	
V_{CEsat}	collector-emitter saturation voltage	I_C = 10 mA; I_B = 0.5 mA	-	-	150	mV
R1	bias resistor 1 (input)		1.54	2.2	2.86	kΩ
C_c	collector capacitance	V_{CB} = 10 V; I_E = i_e = 0 A; f = 1 MHz	-	-	2.5	pF



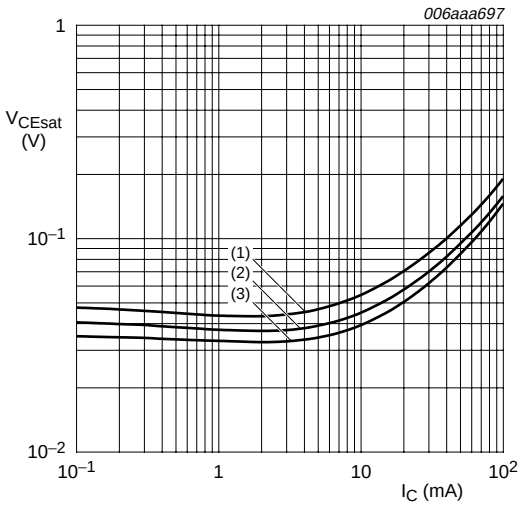
V_{CE} = 5 V

(1) T_{amb} = 100 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = −40 °C

Fig 1. DC current gain as a function of collector current; typical values



I_C/I_B = 20

(1) T_{amb} = 100 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = −40 °C

Fig 2. Collector-emitter saturation voltage as a function of collector current; typical values

8. Package outline

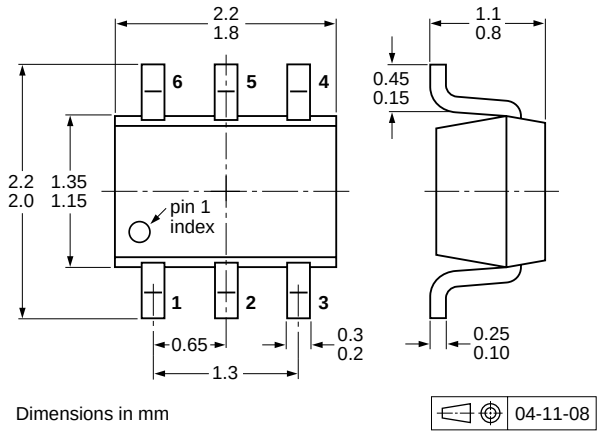


Fig 3. Package outline SOT363 (SC-88)

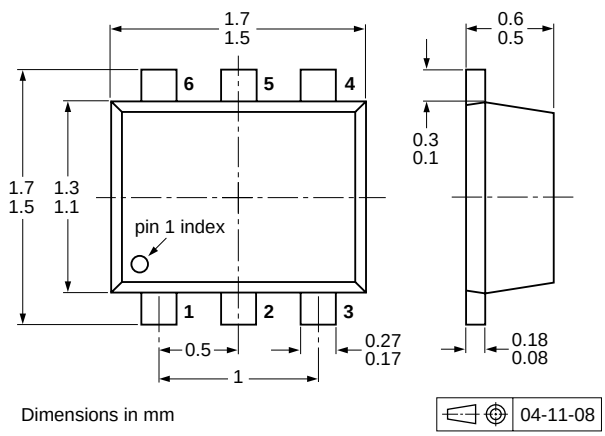


Fig 4. Package outline SOT666

9. Packing information

Table 9. Packing methods

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

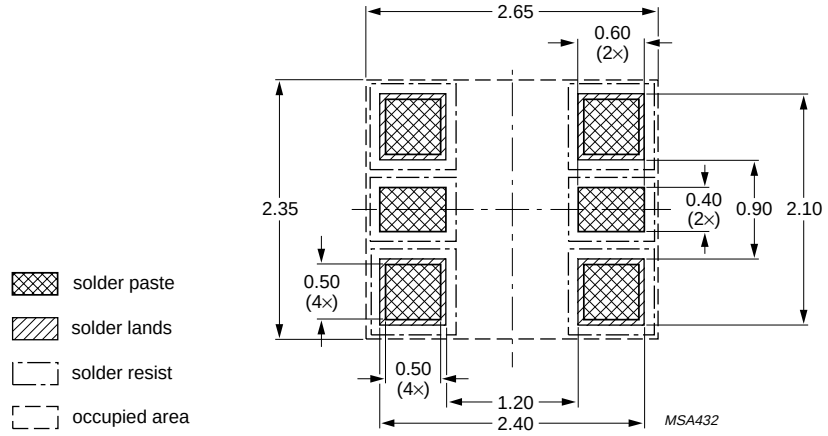
Type number	Package	Description	Packing quantity			
			3000	4000	8000	10000
PEMH30	SOT666	2 mm pitch, 8 mm tape and reel	-	-	-315	-
		4 mm pitch, 8 mm tape and reel	-	-115	-	-
PUMH30	SOT363	4 mm pitch, 8 mm tape and reel; T1 [2]	-115	-	-	-135
		4 mm pitch, 8 mm tape and reel; T2 [3]	-125	-	-	-165

[1] For further information and the availability of packing methods, see Section 13.

[2] T1: normal taping

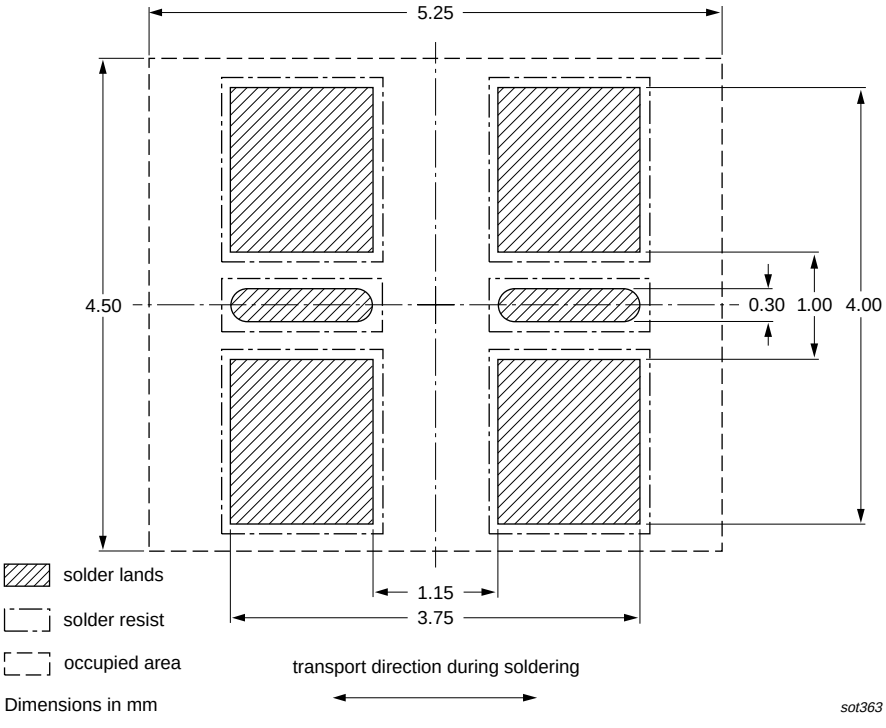
[3] T2: reverse taping

10. Soldering



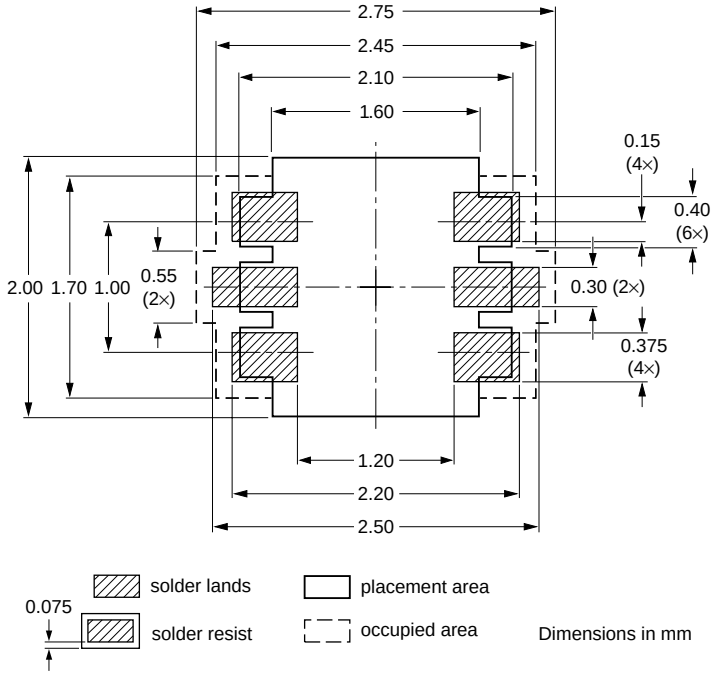
Dimensions in mm

Fig 5. Reflow soldering footprint SOT363 (SC-88)



Dimensions in mm

Fig 6. Wave soldering footprint SOT363 (SC-88)



Reflow soldering is the only recommended soldering method.

Fig 7. Reflow soldering footprint SOT666

11. Revision history

Table 10. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
PEMH30_PUMH30_1	20060328	Product data sheet	-	-

12. Legal information

12.1 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.semiconductors.philips.com.

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Date of release: 28 March 2006

Document identifier: PEMH30_PUMH30_1

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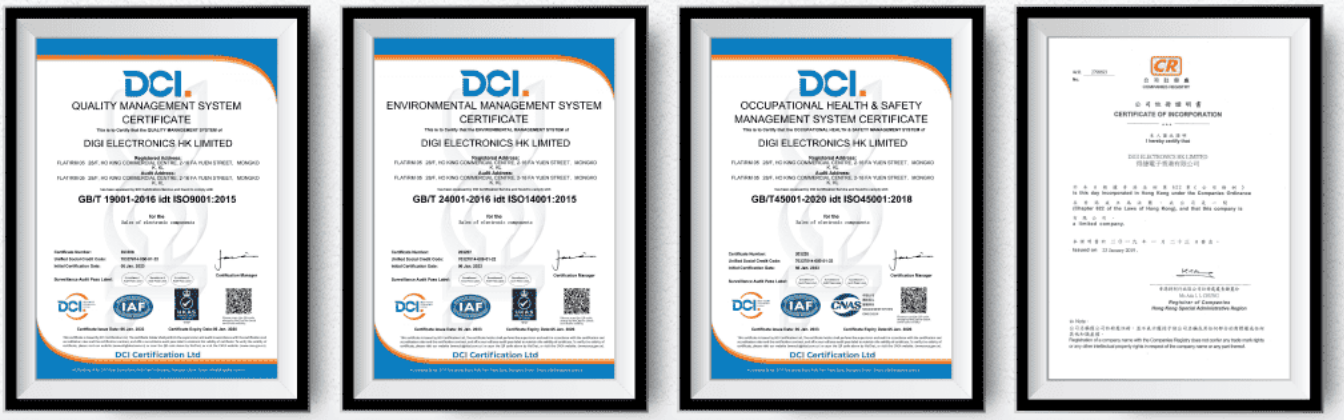

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