

PUMF11,115 Datasheet

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DiGi Electronics Part Number	PUMF11,115-DG
Manufacturer	Nexperia USA Inc.
Manufacturer Product Number	PUMF11,115
Description	TRANS PREBIAS 1NPN 1PNP 6TSSOP
Detailed Description	Pre-Biased Bipolar Transistor (BJT) 1 NPN Pre-Biased, 1 PNP 50V, 40V 100mA 100MHz 300mW Surface Mount 6-TSSOP



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Purchase and inquiry

Manufacturer Product Number:

PUMF11,115

Series:

-

Transistor Type:

1 NPN Pre-Biased, 1 PNP

Voltage - Collector Emitter Breakdown (Max):

50V, 40V

Resistor - Emitter Base (R2):

47kOhms

Vce Saturation (Max) @ Ib, Ic:

150mV @ 500µA, 10mA / 200mV @ 5mA, 50mA

Frequency - Transition:

100MHz

Grade:

Automotive

Mounting Type:

Surface Mount

Supplier Device Package:

6-TSSOP

Manufacturer:

Nexperia USA Inc.

Product Status:

Obsolete

Current - Collector (Ic) (Max):

100mA

Resistor - Base (R1):

22kOhms

DC Current Gain (hFE) (Min) @ Ic, Vce:

80 @ 5mA, 5V / 120 @ 1mA, 6V

Current - Collector Cutoff (Max):

1µA

Power - Max:

300mW

Qualification:

AEC-Q100

Package / Case:

6-TSSOP, SC-88, SOT-363

Base Product Number:

PUMF11

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0075

Moisture Sensitivity Level (MSL):

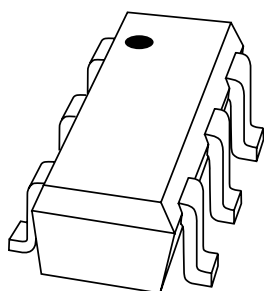
1 (Unlimited)

ECCN:

EAR99

DISCRETE SEMICONDUCTORS

DATA SHEET



PUMF11

**NPN resistor-equipped transistor;
PNP general purpose transistor**

Product data sheet

2002 Apr 09

NPN resistor-equipped transistor; PNP general purpose transistor

PUMF11

FEATURES

- Resistor-equipped transistor and general purpose transistor in one package
- 100 mA collector current
- 50 V collector-emitter voltage
- 300 mW total power dissipation
- SOT363 package; replaces two SOT323 (SC-70) packaged devices on same PCB area
- Reduced pick and place costs.

APPLICATIONS

- Power management switch for portable equipment, e.g. cellular phone and CD player
- Switch for regulator.

DESCRIPTION

NPN resistor-equipped transistor and a PNP general purpose transistor in a SOT363 (SC-88) plastic package.

MARKING

TYPE NUMBER	MARKING CODE ⁽¹⁾
PUMF11	R1*

Note

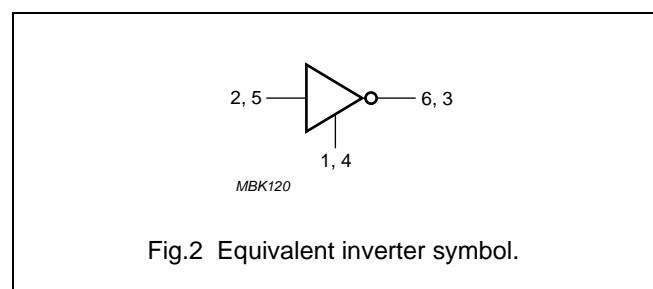
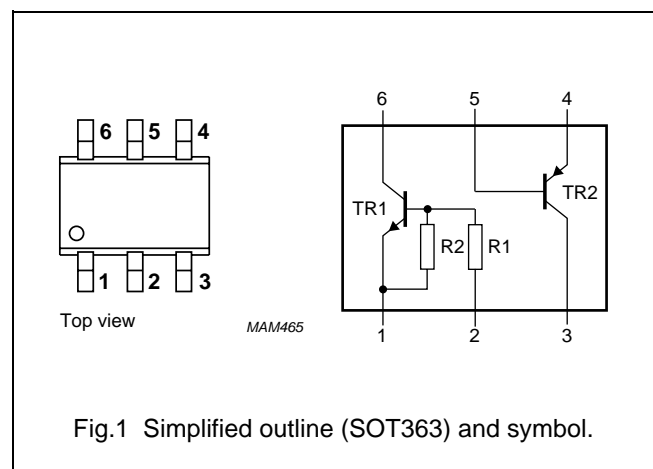
- * = p: Made in Hong Kong.
* = t: Made in Malaysia.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
TR1 (NPN)			
V_{CEO}	collector-emitter voltage	50	V
I_O	output current (DC)	100	mA
R1	bias resistor	22	k Ω
R2	bias resistor	47	k Ω
TR2 (PNP)			
V_{CEO}	collector-emitter voltage	50	V
I_C	collector current (DC)	100	mA
I_{CM}	peak collector current	200	mA

PINNING

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



NPN resistor-equipped transistor; PNP general purpose transistor

PUMF11

LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
Per transistor					
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	200	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C
TR1 (NPN)					
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		–	+40	V
	negative		–	–10	V
I_o	output current (DC)		–	100	mA
I_{CM}	peak collector current		–	100	mA
TR2 (PNP)					
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
Per device					
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	300	mW

Note

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

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	in free air; note 1	416	K/W

Note

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

NPN resistor-equipped transistor; PNP general purpose transistor

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CHARACTERISTICS

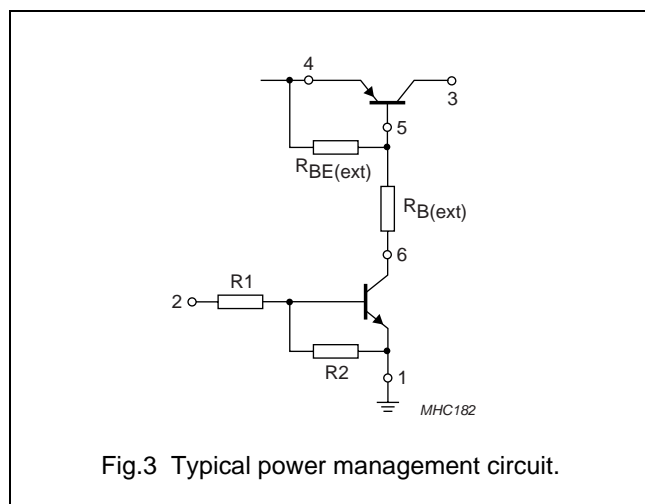
$T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
TR1 (NPN)						
I_{CBO}	collector-base cut-off current	$V_{CB} = 50\text{ V}; I_E = 0$	–	–	100	nA
I_{CEO}	collector-emitter cut-off current	$V_{CE} = 30\text{ V}; I_B = 0$	–	–	1	μA
		$V_{CE} = 30\text{ V}; I_B = 0; T_j = 150\text{ }^{\circ}\text{C}$	–	–	50	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = 5\text{ V}; I_C = 0$	–	–	0.12	mA
h_{FE}	DC current gain	$V_{CE} = 5\text{ V}; I_C = 5\text{ mA}$	80	–	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.5\text{ mA}$	–	–	150	mV
$V_{i(off)}$	input off voltage	$V_{CE} = 5\text{ V}; I_C = 100\text{ }\mu\text{A}$	–	0.9	0.5	V
$V_{i(on)}$	input on voltage	$V_{CE} = 0.3\text{ V}; I_C = 2\text{ mA}$	2	1.1	–	V
R1	input resistor		15.4	22	28.6	k Ω
$\frac{R2}{R1}$	resistor ratio		1.7	2.1	2.6	
C_c	collector capacitance	$V_{CB} = 10\text{ V}; I_E = i_e = 0; f = 1\text{ MHz}$	–	–	2.5	pF
TR2 (PNP)						
I_{CBO}	collector-base cut-off current	$V_{CB} = -30\text{ V}; I_E = 0$	–	–	-100	nA
I_{CEO}	collector-emitter cut-off current	$V_{CB} = -30\text{ V}; I_B = 0; T_j = 150\text{ }^{\circ}\text{C}$	–	–	-10	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = -4\text{ V}; I_C = 0$	–	–	-100	nA
h_{FE}	DC current gain	$V_{CE} = -6\text{ V}; I_C = -1\text{ mA}$	120	–	–	
V_{CEsat}	saturation voltage	$I_C = -50\text{ mA}; I_B = -5\text{ mA}; \text{note 1}$	–	–	-200	mV
C_c	collector capacitance	$V_{CB} = -12\text{ V}; I_E = i_e = 0; f = 1\text{ MHz}$	–	–	2.2	pF
f_T	transition frequency	$V_{CE} = -12\text{ V}; I_C = -2\text{ mA}; f = 100\text{ MHz}$	100	–	–	MHz

Note

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

APPLICATION INFORMATION



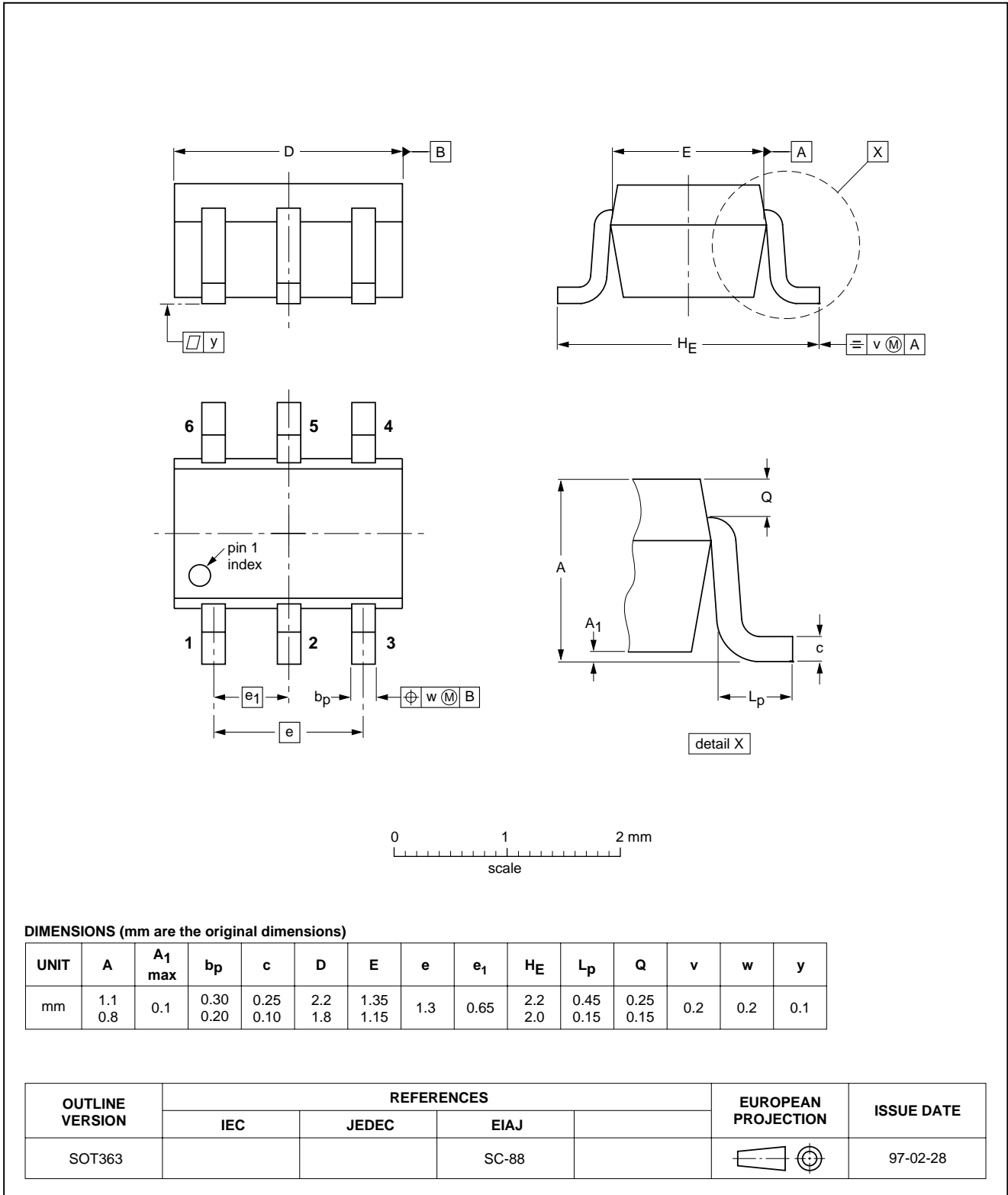
NPN resistor-equipped transistor; PNP
general purpose transistor

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PACKAGE OUTLINE

Plastic surface mounted package; 6 leads

SOT363



NPN resistor-equipped transistor; PNP general purpose transistor

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DATA SHEET STATUS

DOCUMENT STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

Notes

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