



IMPORTANT NOTICE

10 December 2015

1. Global joint venture starts operations as WeEn Semiconductors

Dear customer,

As from November 9th, 2015 NXP Semiconductors N.V. and Beijing JianGuang Asset Management Co. Ltd established Bipolar Power joint venture (JV), **WeEn Semiconductors**, which will be used in future Bipolar Power documents together with new contact details.

In this document where the previous NXP references remain, please use the new links as shown below.

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If you have any questions related to this document, please contact our nearest sales office via e-mail or phone (details via salesaddresses@ween-semi.com).

Thank you for your cooperation and understanding,

WeEn Semiconductors



DATA SHEET

BTA216B series B
Triacs
high commutation

Product specification

October 1997



Triacs high commutation

BTA216B series B

GENERAL DESCRIPTION

Glass passivated high commutation triacs in a plastic envelope suitable for surface mounting, intended for use in circuits where high static and dynamic dV/dt and high dI/dt can occur. These devices will commute the full rated rms current at the maximum rated junction temperature, without the aid of a snubber.

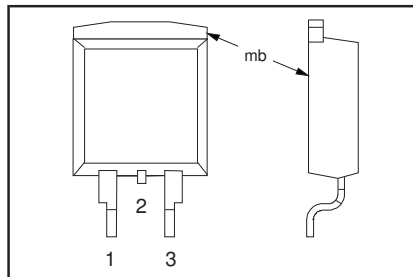
QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	MAX.	MAX.	UNIT
V_{DRM}	Repetitive peak off-state voltages	500B	600B	800B	V
		500	600	800	
		16	16	16	
$I_{T(RMS)}$	RMS on-state current	16	16	16	A
I_{TSM}	Non-repetitive peak on-state current	140	140	140	A

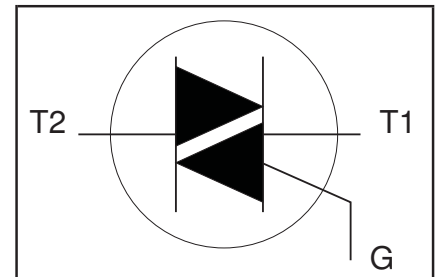
PINNING - SOT404

PIN	DESCRIPTION
1	main terminal 1
2	main terminal 2
3	gate
mb	main terminal 2

PIN CONFIGURATION



SYMBOL



LIMITING VALUES

Limiting values in accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.			UNIT
				-500 500 ¹	-600 600 ¹	-800 800	
V_{DRM}	Repetitive peak off-state voltages		-				V
$I_{T(RMS)}$	RMS on-state current	full sine wave; $T_{mb} \leq 99^\circ C$	-	16			A
I_{TSM}	Non-repetitive peak on-state current	full sine wave; $T_j = 25^\circ C$ prior to surge	-	140			A
I^2t	I^2t for fusing	$t = 20$ ms	-	140			A
		$t = 16.7$ ms	-	150			A
		$t = 10$ ms	-	98			A ² s
dI_T/dt	Repetitive rate of rise of on-state current after triggering	$I_M = 20$ A; $I_G = 0.2$ A; $dI_G/dt = 0.2$ A/ μ s	-	100			A/ μ s
I_{GM}	Peak gate current		-	2			A
V_{GM}	Peak gate voltage		-	5			V
P_{GM}	Peak gate power		-	5			W
$P_{G(AV)}$	Average gate power	over any 20 ms period	-	0.5			W
T_{stg}	Storage temperature		-40	150			$^\circ C$
T_j	Operating junction temperature		-	125			$^\circ C$

¹ Although not recommended, off-state voltages up to 800V may be applied without damage, but the triac may switch to the on-state. The rate of rise of current should not exceed 15 A/ μ s.

Triacs high commutation

BTA216B series B

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$R_{th\ j-mb}$	Thermal resistance junction to mounting base	full cycle	-	-	1.2	K/W
$R_{th\ j-a}$	Thermal resistance junction to ambient	half cycle minimum footprint, FR4 board	-	-	1.7	K/W
			-	55	-	K/W

STATIC CHARACTERISTICS

$T_j = 25\text{ °C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{GT}	Gate trigger current ²	$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$				
		T2+ G+	2	18	50	mA
		T2+ G-	2	21	50	mA
		T2- G-	2	34	50	mA
I_L	Latching current	$V_D = 12\text{ V}$; $I_{GT} = 0.1\text{ A}$				
		T2+ G+	-	31	60	mA
		T2+ G-	-	34	90	mA
		T2- G-	-	30	60	mA
I_H	Holding current	$V_D = 12\text{ V}$; $I_{GT} = 0.1\text{ A}$	-	31	60	mA
V_T	On-state voltage	$I_T = 20\text{ A}$	-	1.2	1.5	V
V_{GT}	Gate trigger voltage	$V_D = 12\text{ V}$; $I_T = 0.1\text{ A}$	-	0.7	1.5	V
I_D	Off-state leakage current	$V_D = 400\text{ V}$; $I_T = 0.1\text{ A}$; $T_j = 125\text{ °C}$	0.25	0.4	-	V
		$V_D = V_{DRM(max)}$; $T_j = 125\text{ °C}$	-	0.1	0.5	mA

DYNAMIC CHARACTERISTICS

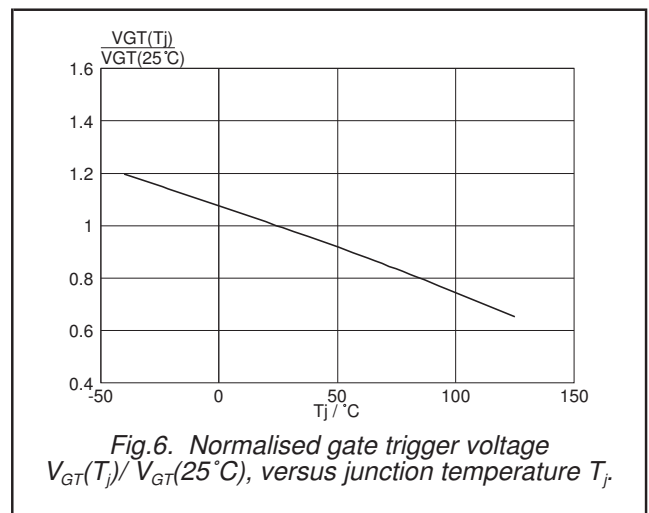
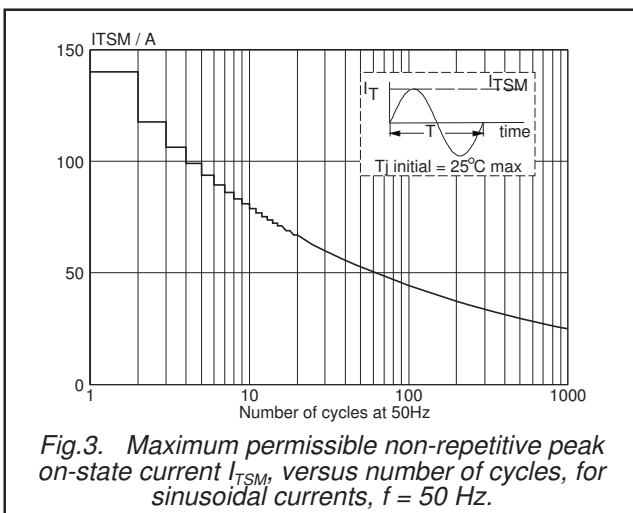
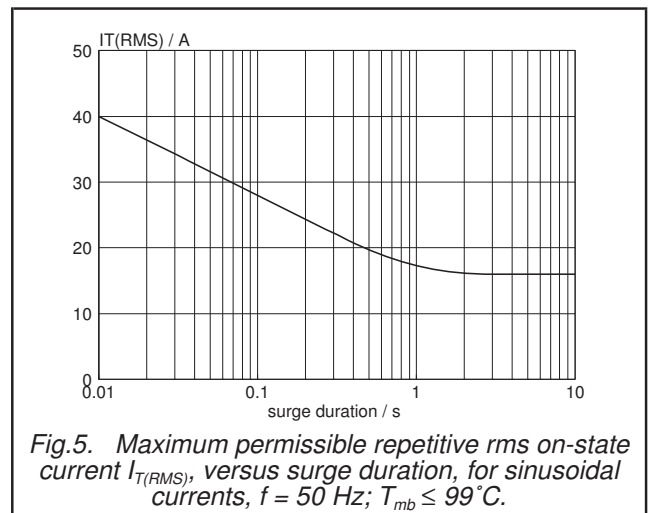
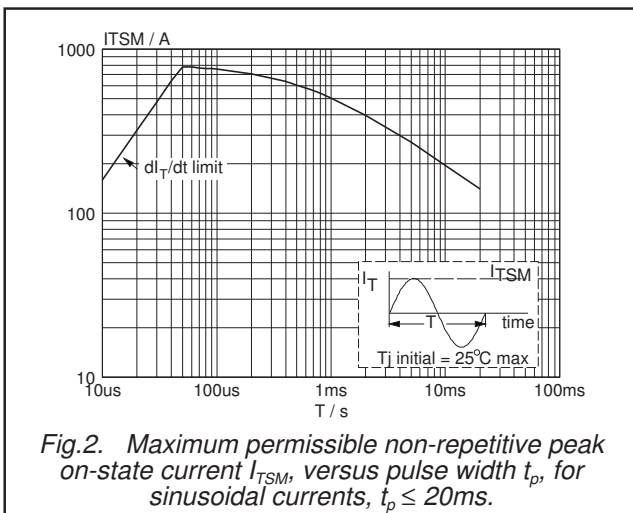
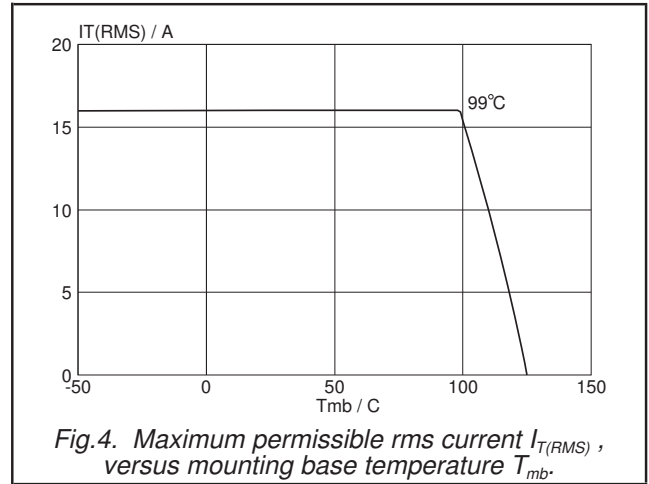
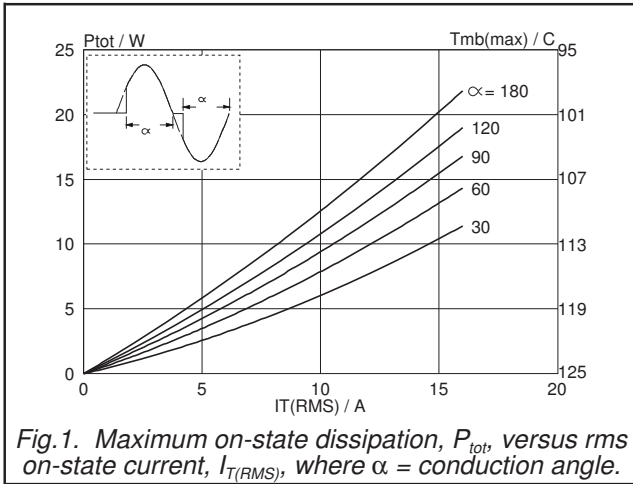
$T_j = 25\text{ °C}$ unless otherwise stated

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
dV_D/dt	Critical rate of rise of off-state voltage	$V_{DM} = 67\% V_{DRM(max)}$; $T_j = 125\text{ °C}$; exponential waveform; gate open circuit	1000	4000	-	V/ μ s
dI_{com}/dt	Critical rate of change of commutating current	$V_{DM} = 400\text{ V}$; $T_j = 125\text{ °C}$; $I_{T(RMS)} = 16\text{ A}$; without snubber; gate open circuit	-	28	-	A/ms
t_{gt}	Gate controlled turn-on time	$I_{TM} = 20\text{ A}$; $V_D = V_{DRM(max)}$; $I_G = 0.1\text{ A}$; $dI_G/dt = 5\text{ A}/\mu$ s	-	2	-	μ s

² Device does not trigger in the T2-, G+ quadrant.

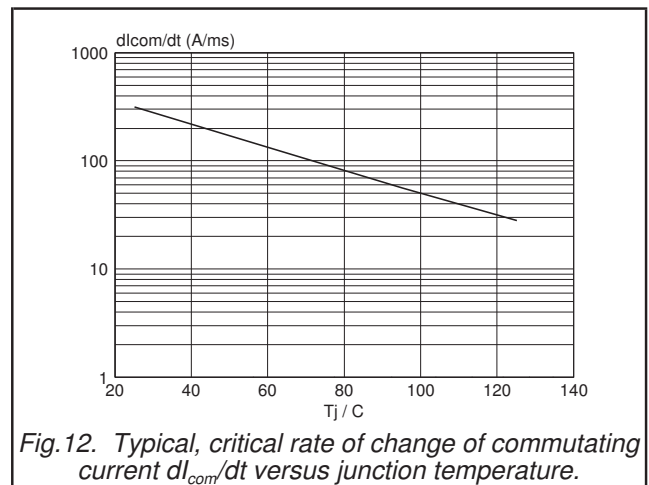
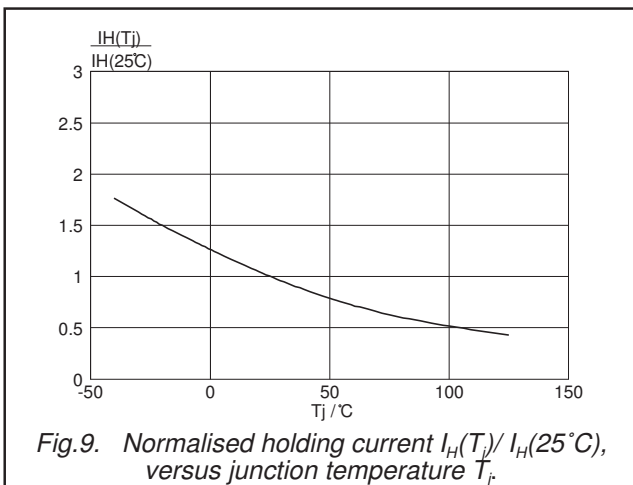
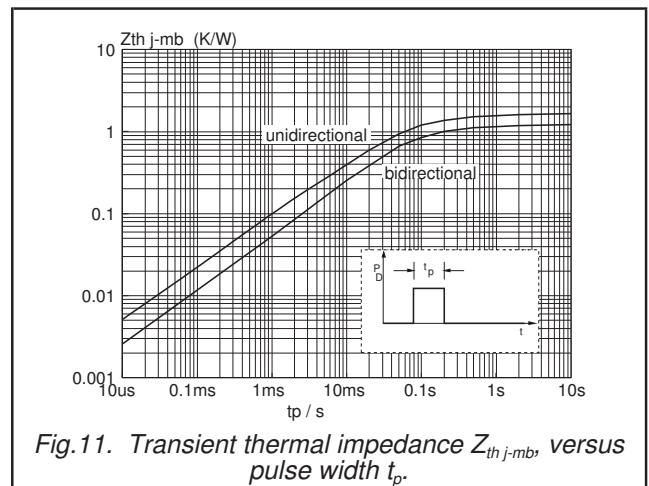
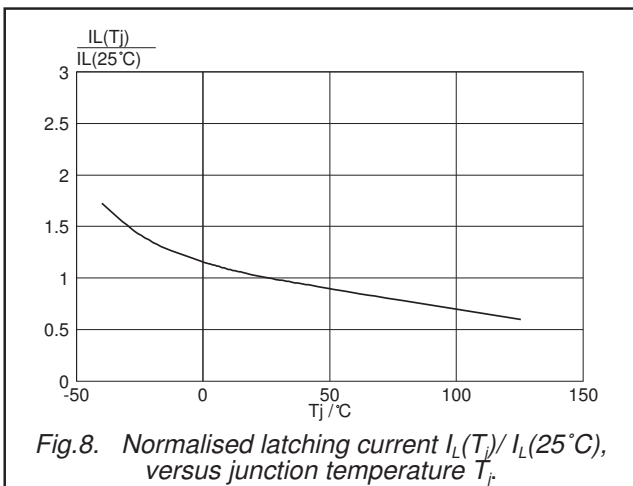
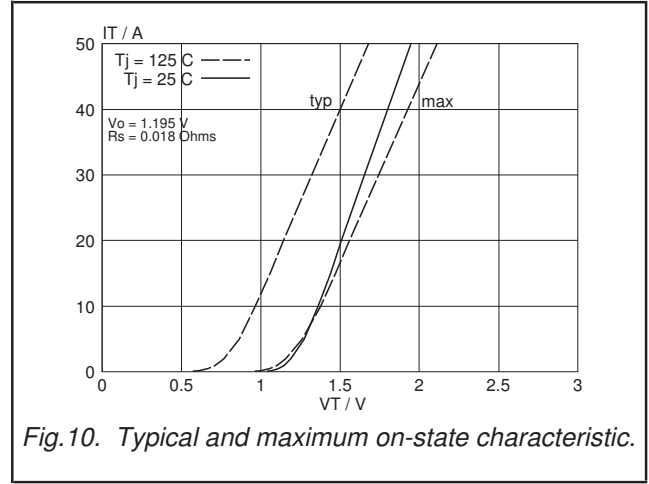
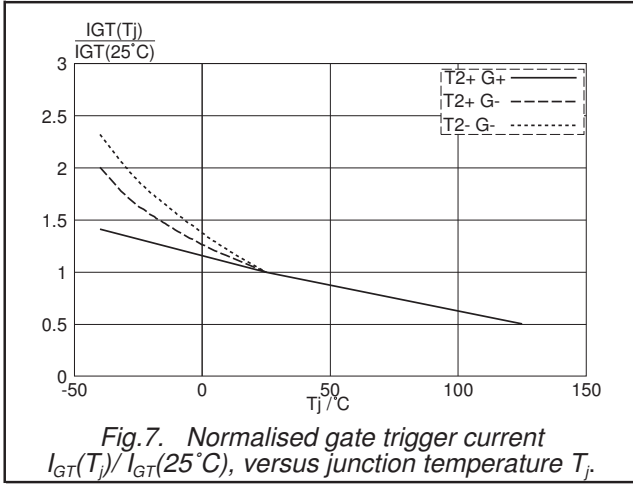
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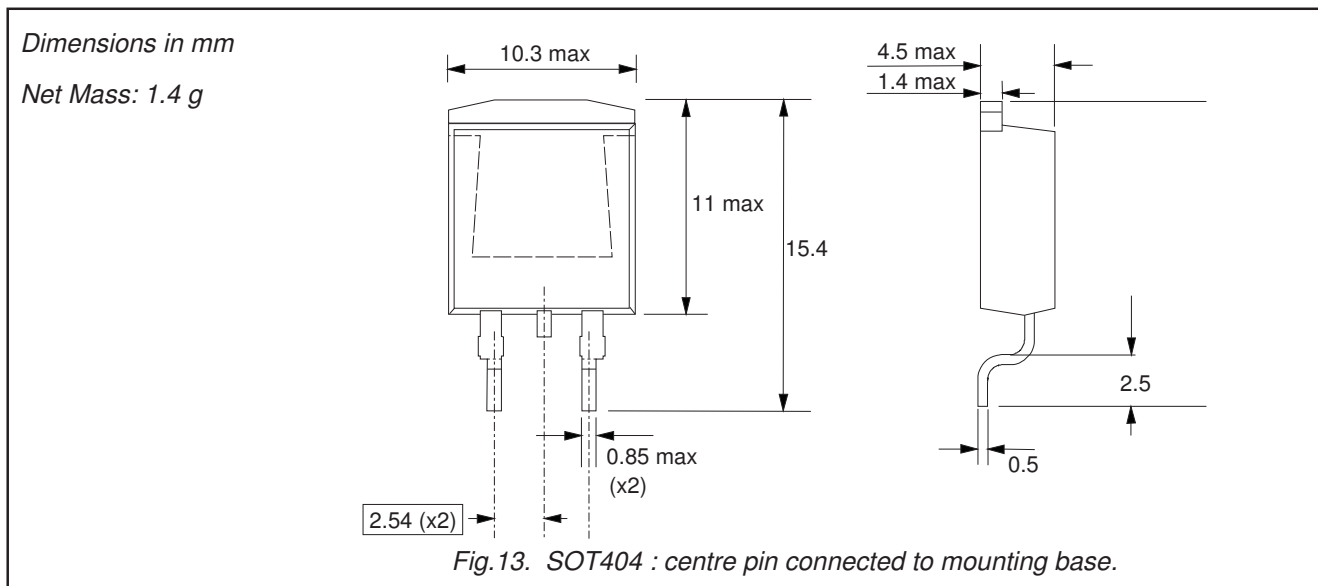
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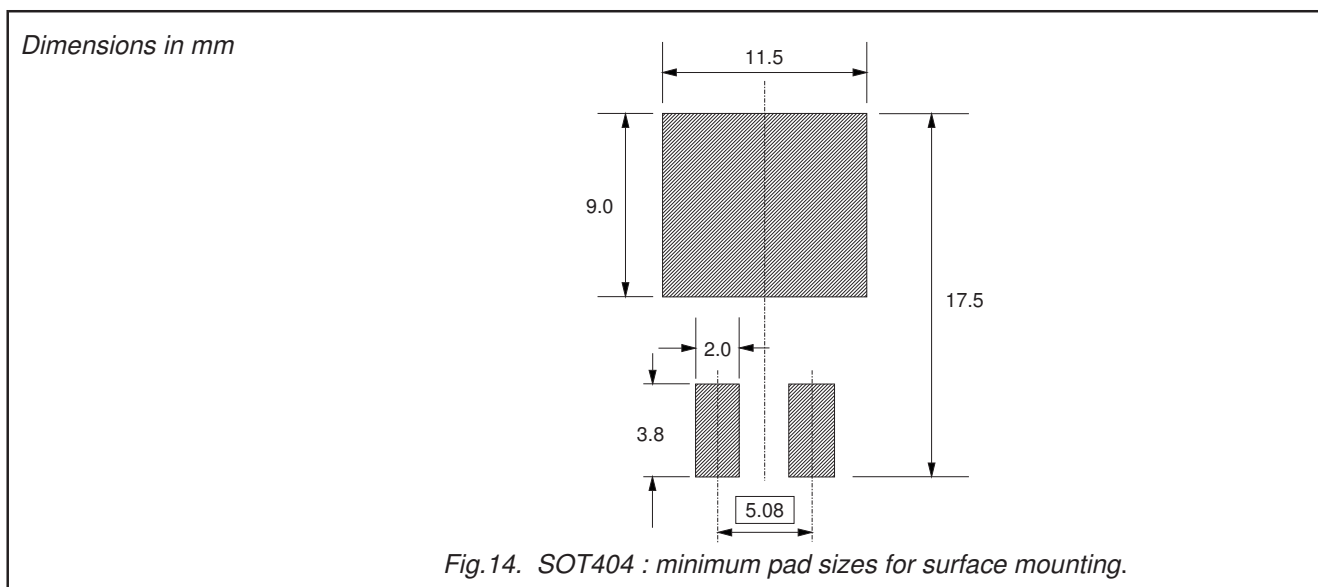
MECHANICAL DATA



Notes

- 1. Epoxy meets UL94 V0 at 1/8".

MOUNTING INSTRUCTIONS



Notes

- 1. Plastic meets UL94 V0 at 1/8".

Legal information

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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This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the content, except for the legal definitions and disclaimers.

Contact information

For additional information please visit: <http://www.nxp.com>

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