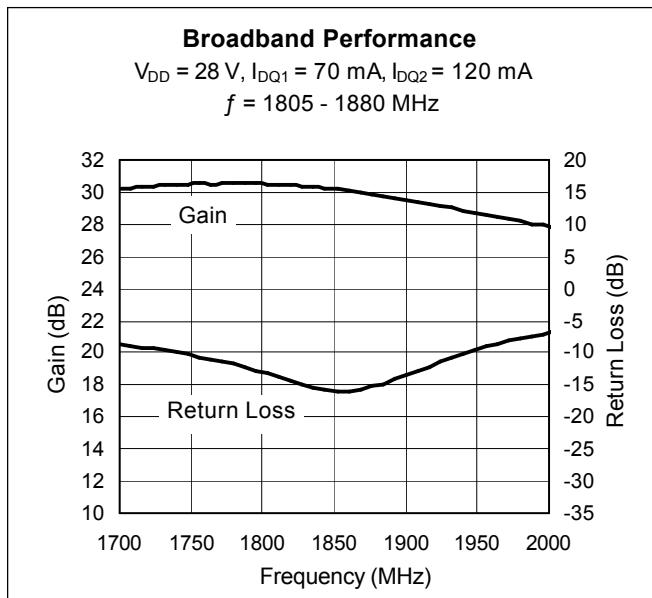


Wideband RF LDMOS Integrated Power Amplifier 15 W, 1800 – 2000 MHz

Description

The PTMA180152M is a wideband, matched, 15-watt, 2-stage LDMOS integrated amplifier intended for wideband driver applications in the 1800 to 2000 MHz band. This device is offered in a 20-lead thermally-enhanced overmolded package for cool and reliable operation.

PTMA180152M*
Package DSO-20-63



Features

- Designed for wide RF bandwidth and low memory effects
- Broadband on-chip matching, 50-ohm input and >10-ohm output
- Typical GSM/EDGE performance at 1805 – 1880 MHz, 28 V, 7 W
 - Gain = 30 dB
 - Efficiency = 30 %
 - EVM @ 2 W = 1.5%
 - ACPR at 400 KHz = -63 dBc
 - ACPR at 600 KHz = -70 dBc
- Typical CW performance, 1800 MHz, 28 V
 - Output power at P-1dB > 20 W
 - Efficiency > 49%
- Integrated ESD protection: Meets HBM Class 1B (minimum), per JESD22-A114F
- Capable of handling 3:1 VSWR @ 28 V, 15 W (CW) output power
- Thermally-enhanced RoHS-compliant package

RF Characteristics

GSM/EDGE Measurements (not subject to production test—verified by design/characterization in Infineon test fixture)

$V_{DS} = 28$ V, $I_{DQ1} = 70$ mA, $I_{DQ2} = 150$ mA, $f = 1805$ – 1880 MHz, $P_{OUT} = 7$ W average

Characteristic	Symbol	Min	Typ	Max	Unit
Gain	G_{ps}	—	30	—	dB
Power Added Efficiency	η	—	30	—	%
Input Return Loss	IRL	—	—	-10	dB
Error Vector Magnitude	EVM (RMS)	—	1.5	—	%
Adjacent Channel Power Ratio	ACPR1	—	-63	—	dBc
	ACPR2	—	-70	—	dBc

table continued next page

All published data at $T_{CASE} = 25^\circ\text{C}$ unless otherwise indicated

*See Infineon distributor for future availability.

ESD: Electrostatic discharge sensitive device—observe handling precautions!

RF Characteristics (cont.)

GSM/EDGE Measurements (cont.)

$V_{DS} = 28$ V, $I_{DQ1} = 70$ mA, $I_{DQ2} = 150$ mA, $f = 1805 - 1880$ MHz, $P_{OUT} = 7$ W average

Characteristic	Symbol	Min	Typ	Max	Unit
Intermodulation Distortion	IMD3	—	-37	—	dBc
Spurs Load 3:1	—	—	-60	—	dBc
Gain Flatness	ΔG	—	0.2	—	dB

DC Characteristics

Characteristic	Conditions	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0$ V, $I_{DS} = 10$ mA	$V_{(BR)DSS}$	65	—	—	V
Drain Leakage Current	$V_{DS} = 28$ V, $V_{GS} = 0$ V	I_{DSS}	—	—	1.0	μA
	$V_{DS} = 63$ V, $V_{GS} = 0$ V	I_{DSS}	—	—	10.0	μA
On-State Resistance	Stage 1 $V_{GS} = 10$ V, $V_{DS} = 0.1$ V	$R_{DS(on)}$	—	0.6	—	Ω
	Stage 2 $V_{GS} = 10$ V, $V_{DS} = 0.1$ V	$R_{DS(on)}$	—	3.5	—	Ω
Operating Gate Voltage	$V_{DS} = 28$ V	V_{GS}	2	2.5	3	V
Gate Leakage Current	$V_{GS} = 10$ V, $V_{DS} = 0$ V	I_{GSS}	—	—	1.0	μA

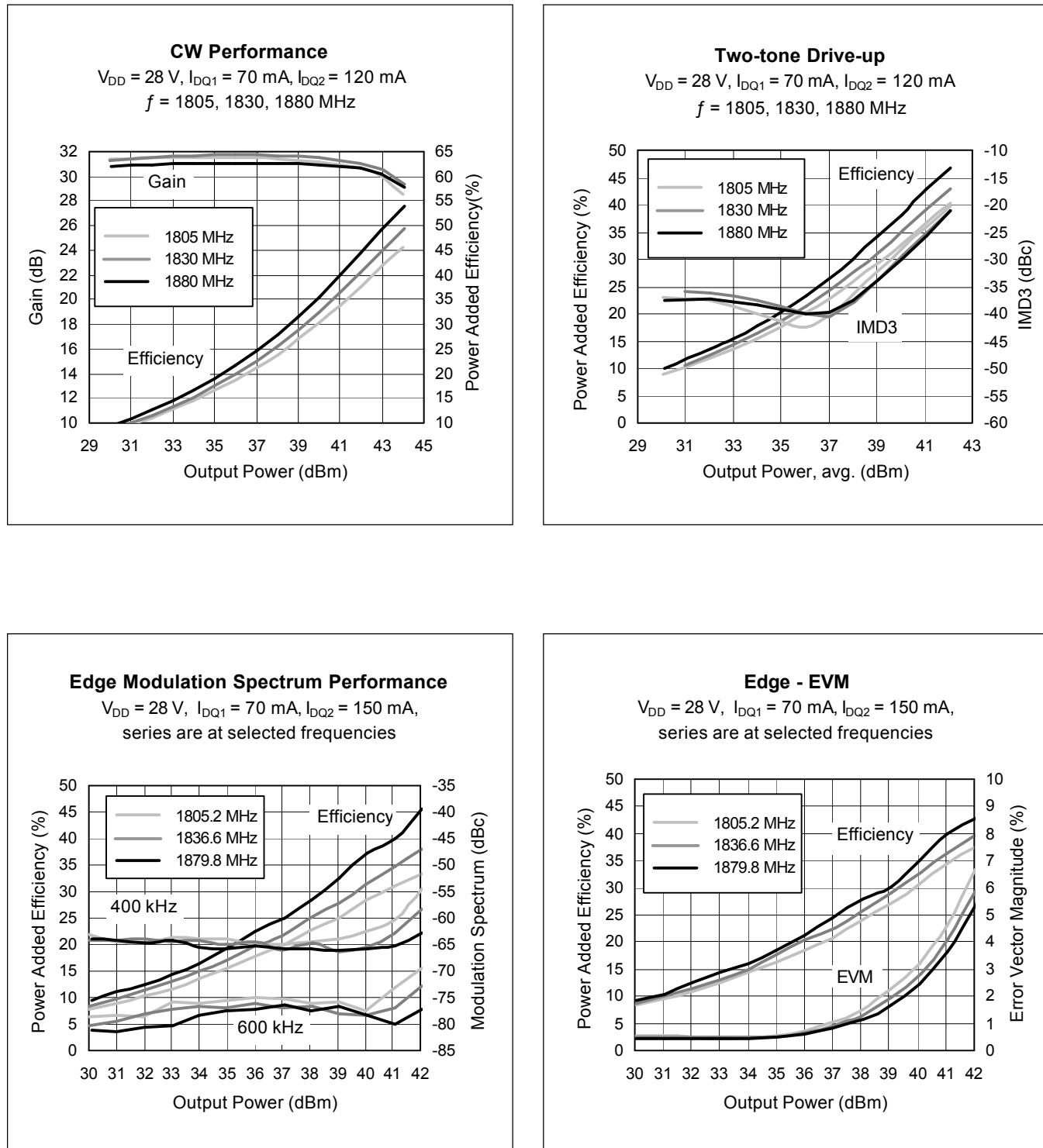
Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	65	V
Gate-Source Voltage	V_{GS}	-0.5 to +12	V
Junction Temperature	T_J	200	$^{\circ}C$
Input Power	P_{IN}	15	W
Total Device Dissipation	P_D	91	W
Above 25°C derate by		0.52	W/ $^{\circ}C$
Storage Temperature Range	T_{STG}	-40 to +150	$^{\circ}C$
Thermal Resistance ($T_{CASE} = 70^{\circ}C$, 15 W CW)	Stage 1 $R_{\theta JC}$	TBD	$^{\circ}C/W$
	Stage 2 $R_{\theta JC}$	TBD	$^{\circ}C/W$

Ordering Information

Type and Version	Package Outline	Package Description	Shipping	Marking
PTMA180152M V1	PG-DSO-20-63	Thermally-enhanced surface-mount	Tape	PTMA180152M

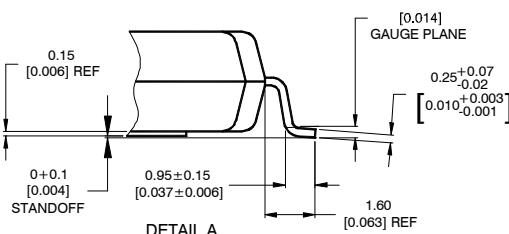
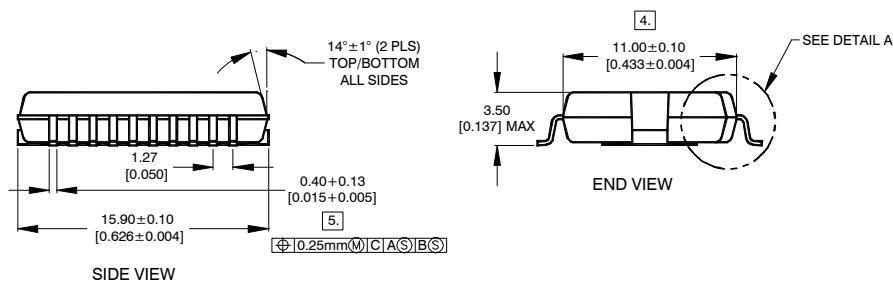
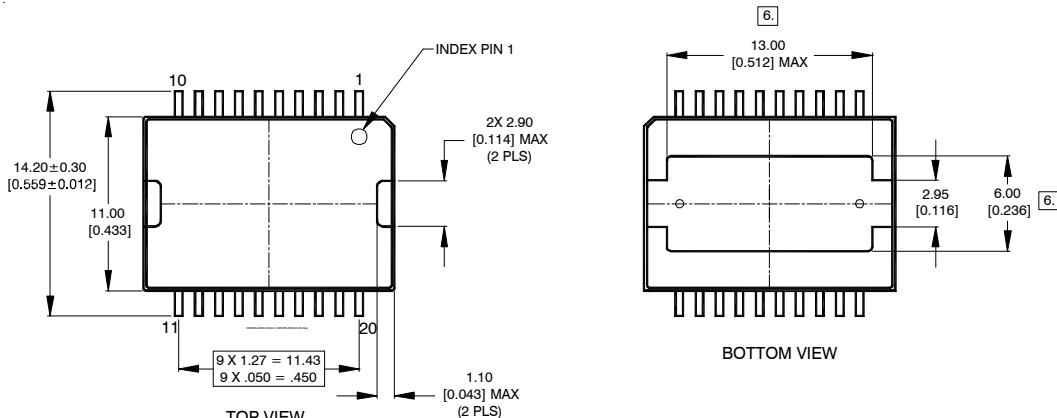
Typical Performance (data taken in a production test fixture)



*See Infineon distributor for future availability.

Package Outline Specifications

Package PG-DSO-20-63 Outline



Notes: Unless otherwise specified

1. Interpret dimensions and tolerances per ASME Y14.5M-1994.
2. Package dimensions: 11.0 mm by 15.9 mm by 3.35 mm.
3. JEDEC drawing number: MO-166.

4.	Does not include plastic or metal protrusion of 0.15 mm max per side.
5.	Does not include dambar protrusion; maximum allowable dambar protrusion shall be 0.08 mm.
6.	Bottom metallization.

Revision History: 2009-03-03

Preliminary Data Sheet

Previous Version: None

Page Subjects (major changes since last revision)

We Listen to Your Comments

Any information within this document that you feel is wrong, unclear or missing at all?

Your feedback will help us to continuously improve the quality of this document.

Please send your proposal (including a reference to this document) to:

highpowerRF@infineon.com

To request other information, contact us at:

+1 877 465 3667 (1-877-GO-LDMOS) USA

or +1 408 776 0600 International

**Edition 2009-03-03****Published by****Infineon Technologies AG
81726 Munich, Germany****©2009 Infineon Technologies AG
All Rights Reserved.****Legal Disclaimer**

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.

Information

For further information on technology, delivery terms and conditions and prices, please contact the nearest Infineon Technologies Office (www.infineon.com/rfpower).

Warnings

Due to technical requirements, components may contain dangerous substances. For information on the types in question, please contact the nearest Infineon Technologies Office.

Infineon Technologies components may be used in life-support devices or systems only with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Infineon:](#)

[PTMA180152MV1](#)