



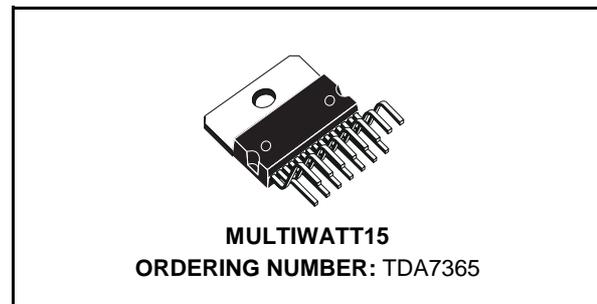
TDA7365

2 x 6W CAR RADIO AMPLIFIER PLUS SOLID STATE SWITCH

- OUTPUT POWER 2x6W/4Ω @14.4V, 1KHz, 10%
- SOLID STATE POWER SWITCH INCLUDED (1A @ V_{DROP} = 0.8V Typ.)
- MINIMUM EXTERNAL COMPONENT COUNT
 - INTERNALLY FIXED GAIN (40dB)
 - NO BOOTSTRAP CAPACITORS
 - NO EXTERNAL COMPENSATION
- ST-BY FUNCTION (CMOS COMPATIBLE)
- MUTE FUNCTION (CMOS COMPATIBLE)
- NO AUDIBLE POP DURING MUTE/ST-BY OPERATIONS
- LOW SUPPLY SELF MUTING

PROTECTIONS

- AC AUDIO OUTPUTS SHORT CIRCUIT TO GND
- DC AUDIO OUTPUTS SHORT CIRCUIT TO GND AND TO V_s AT POWER ON
- SWITCH OUTPUT INTERNAL CURRENT LIMITATION
- OVERRATING CHIP TEMPERATURE WITH SOFT THERMAL LIMITER
- LOAD DUMP
- FORTUITOUS OPEN GND



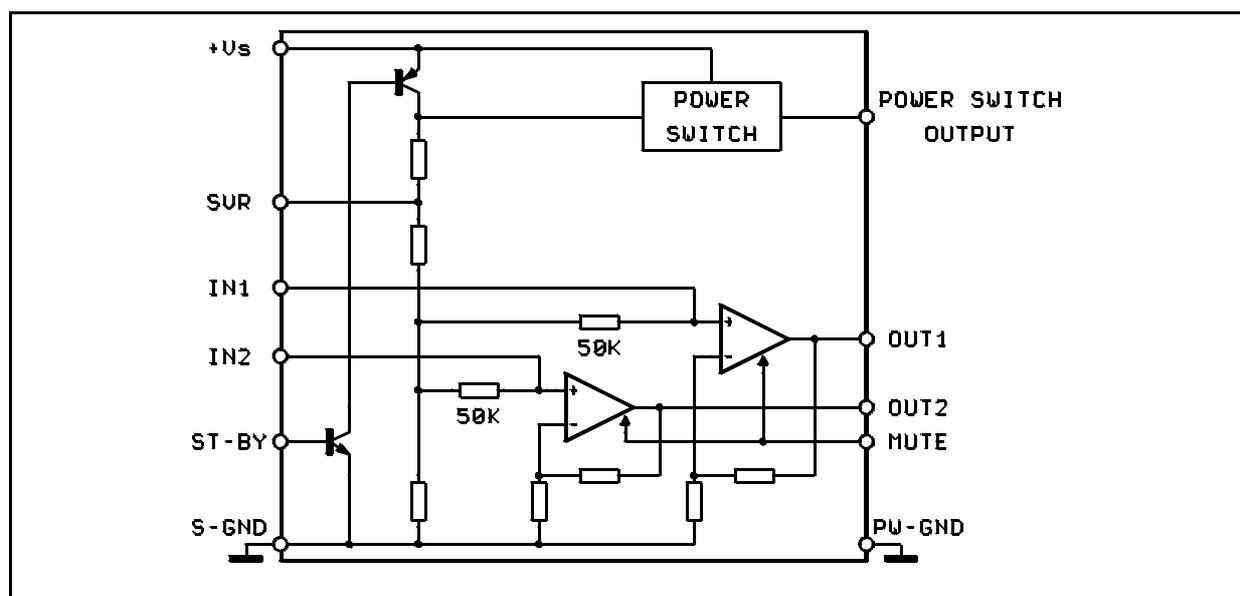
- REVERSE BATTERY
- ESD

DESCRIPTION

The TDA7365 is a new technology Dual Audio Amplifier in Multiwatt15 package especially designed for stereo car radio applications.

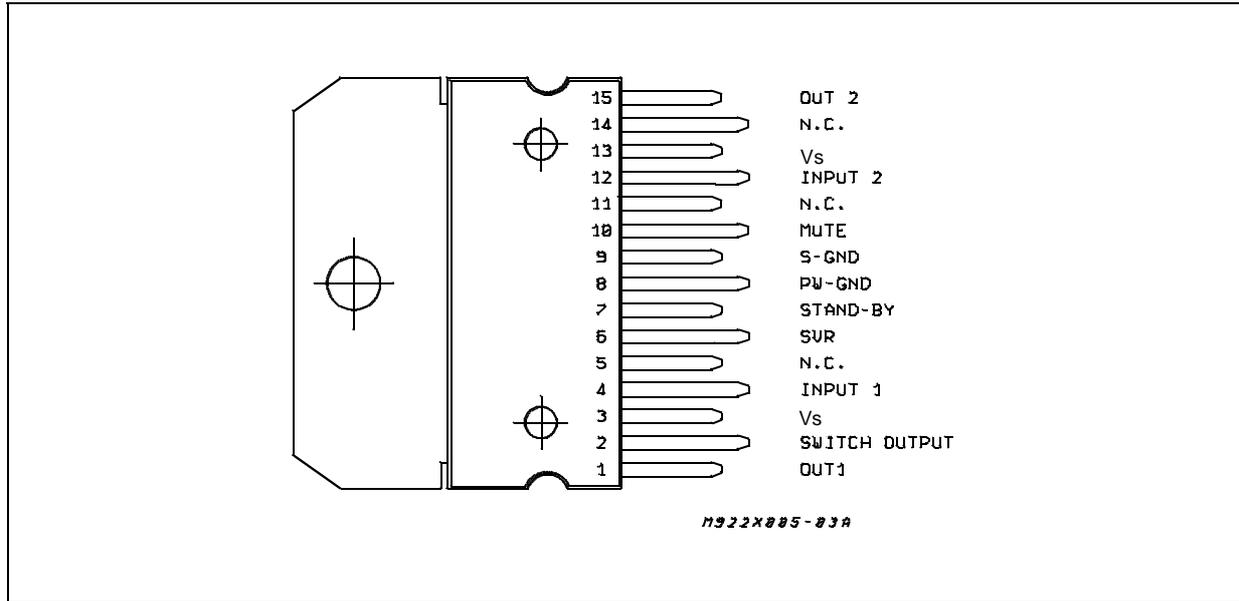
Thanks to the fully complementary output configuration the TDA7365 delivers a rail to rail voltage swing with no need of bootstrap capacitors. It includes a solid state switch, enabled by a ST-BY function common to the audio section, suitable for supplying both the signal processing part of the car radio set and the lamps. As a result the power-on operation is simplified, thereby saving cost and space in the whole power section.

BLOCK DIAGRAM



TDA7365

PIN CONNECTION (Top view)



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	DC Supply Voltage	28	V
V_{OP}	Operating Supply Voltage	18	V
V_{PEAK}	Peak Supply Voltage ($t = 50\text{ms}$)	40	V
I_O	Audio Channels Output Peak Current (not rep. $t = 100\mu\text{s}$)	4	A
I_O	Audio Channels Output Peak Current (rep. $f > 10\text{Hz}$)	3	A
I_O	Switch Output Peak Current	(internally limited) 1.5	A
P_{tot}	Power Dissipation ($T_{case} = 85^\circ\text{C}$)	32	W
T_{stg}, T_j	Storage and Junction Temperature	-40 to 150	$^\circ\text{C}$

THERMAL DATA

Symbol	Description	Value	Unit
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max 2	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS (Refer to the test circuit; $V_S = 14.4V$; $R_L = 4\Omega$, $T_{amb} = 25^\circ C$, $f = 1kHz$, unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_S	Supply Range		8		18	V
I_d	Total Quiescent Drain Current	Power Switch Unloaded		80		mA
P_O	Output Power	$R_L = 4\Omega$; THD = 10% each channel	5.5	6		W
		$R_L = 2\Omega$; THD = 10% each channel		9		W
d	Distortion	$P_O = 0.1$ to $3W$		0.08	0.3	%
CT	Cross Talk	$f = 1kHz$; $R_g = 0$	50	55		dB
		$f = 10kHz$; $R_g = 0$		50		dB
R_{IN}	Input Impedance		40	50		$K\Omega$
G_V	Voltage Gain		39	40	41	dB
G_V	Voltage Gain Match.				1	dB
E_{IN}	Input Noise Voltage (*)	$R_g = 0$		1.2	5	μV
SVR	Supply Voltage Rejection	$R_g = 0$; $f = 100Hz$; $V_r = 0.5V_{rms}$	45	50		dB
ASB	Stand-by Attenuation		60	90		dB
I_{SB}	ST-BY Current Consumption				100	μA
$V_{SB IN}$	ST-BY IN Threshold Voltage				1.5	V
$V_{SB OUT}$	ST-BY OUT Threshold Voltage		3.5			V
$V_{M IN}$	MUTE IN Threshold Voltage				1.5	V
$V_{M OUT}$	MUTE OUT Threshold Voltage		3.5			V

POWER SWITCH CHARACTERISTICS

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
I_{OP}	Continuous Output Current			1.2		A
V_{DROP}	Dropout Voltage	$I_o = 1A$			1.4	V

(*) 22Hz to 22KHz
 (**) A weighted

TEST AND APPLICATION CIRCUIT

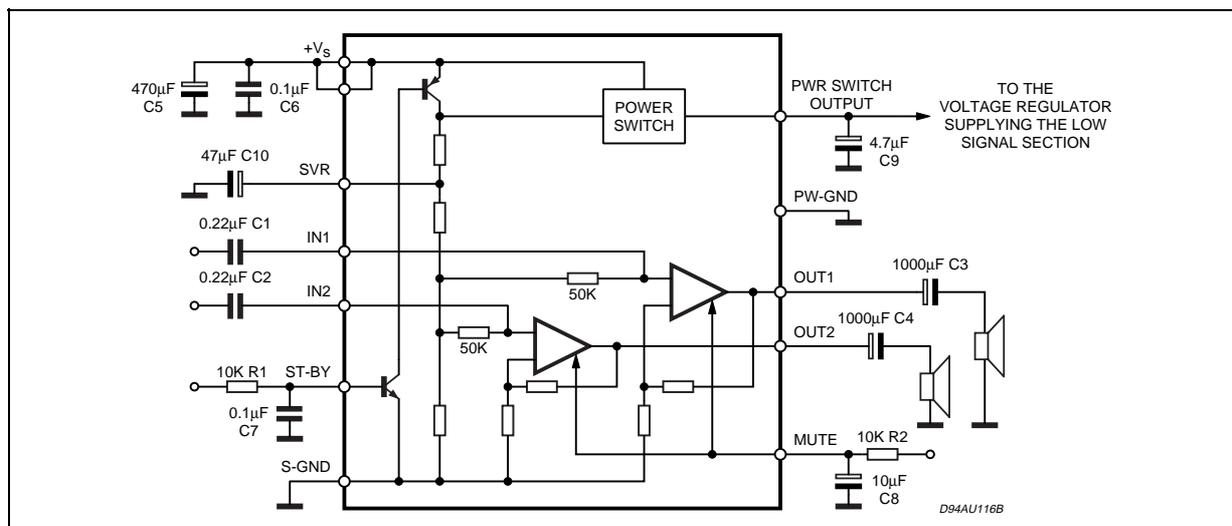


Figure 1: P.C.Board and component layout of the Test and Application Circuit 1:1 scale.

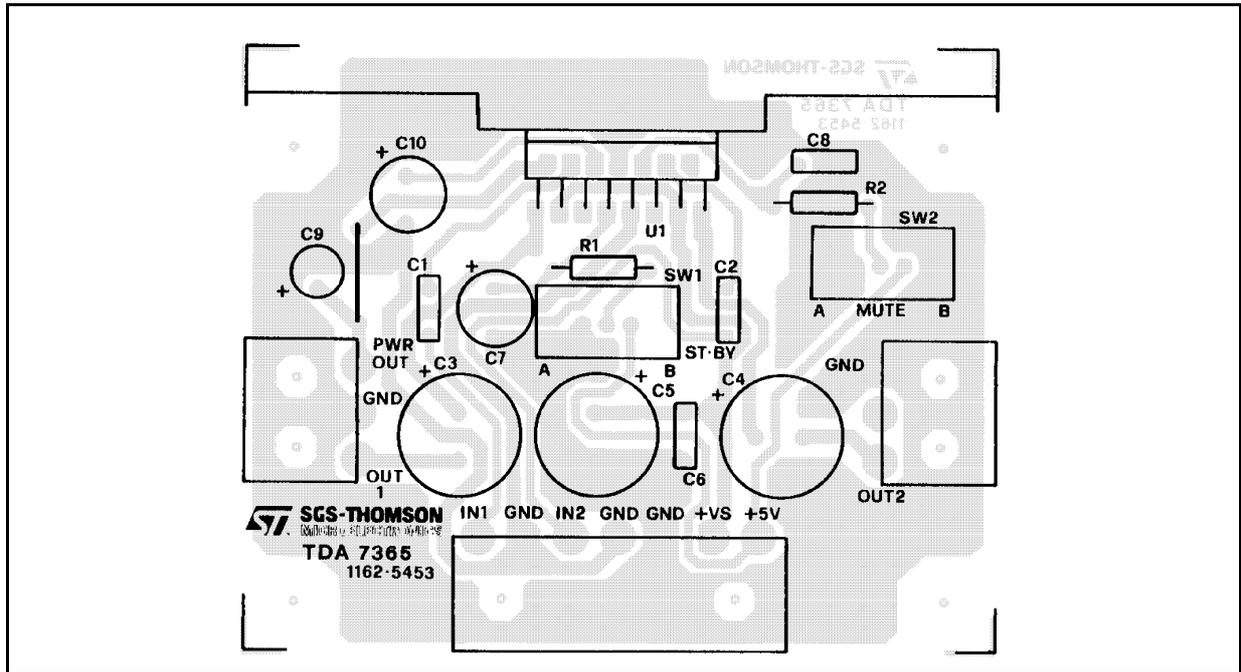


Figure 2: Quiescent Drain Current vs. Supply Voltage

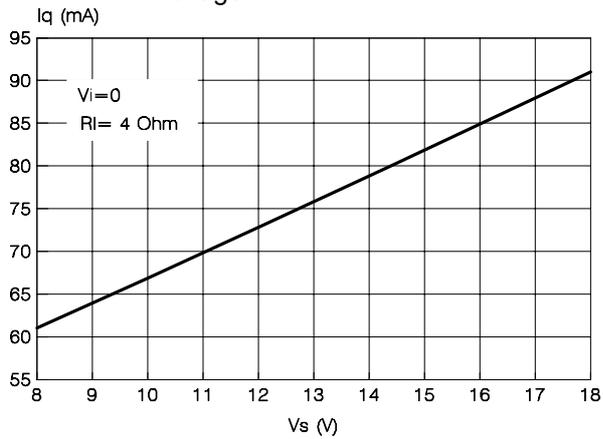


Figure 4: Output Power vs. Supply Voltage

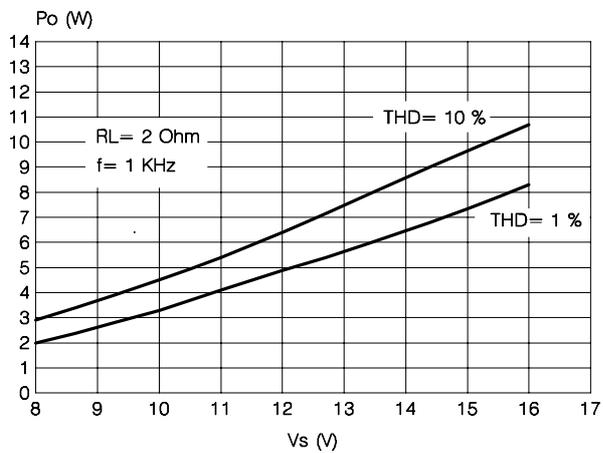


Figure 3: Output Power vs. Supply Voltage

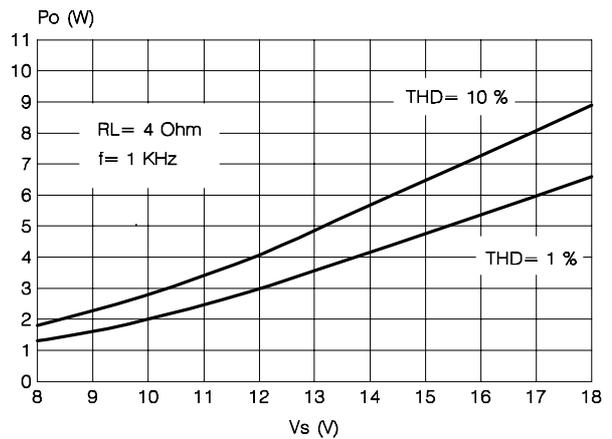


Figure 5: Distortion vs. Output Power

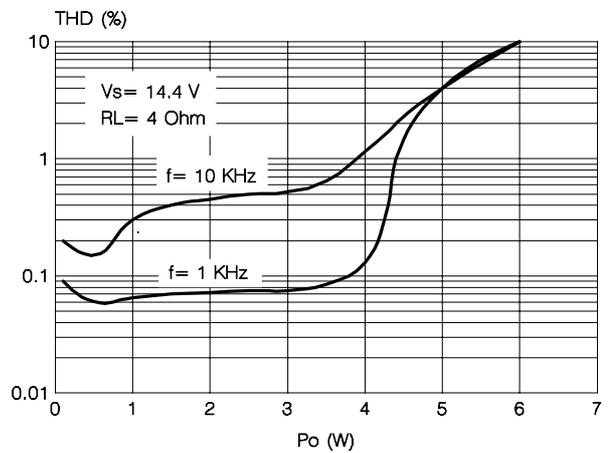


Figure 6: Distortion vs. Frequency

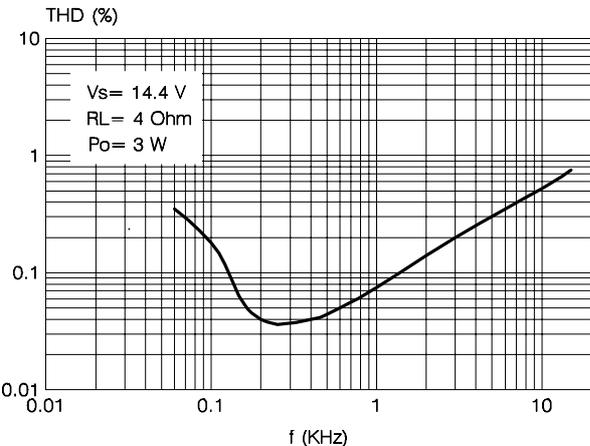


Figure 7: Supply Voltage Rejection

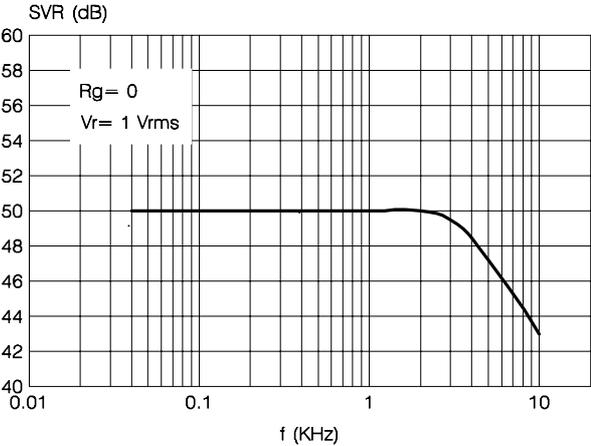


Figure 8: Cross-Talk vs. Frequency

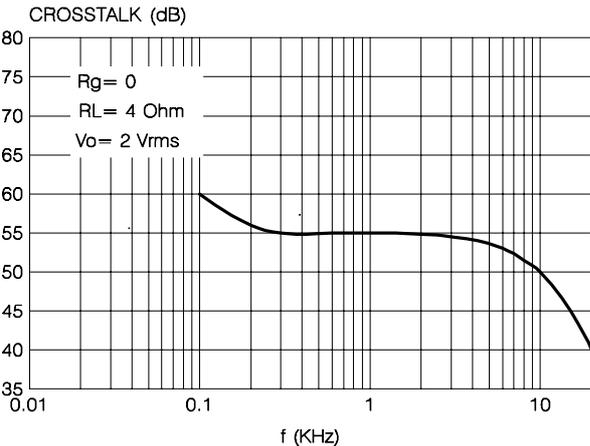


Figure 9: Switch Drop-out vs. Switch Current

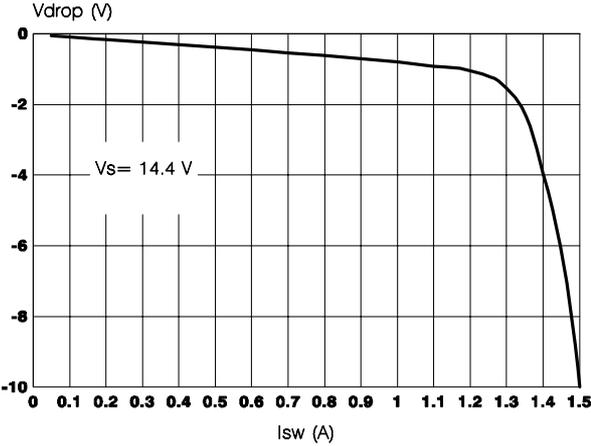


Figure 10: Total Power Dissipation and Efficiency vs. Output Power

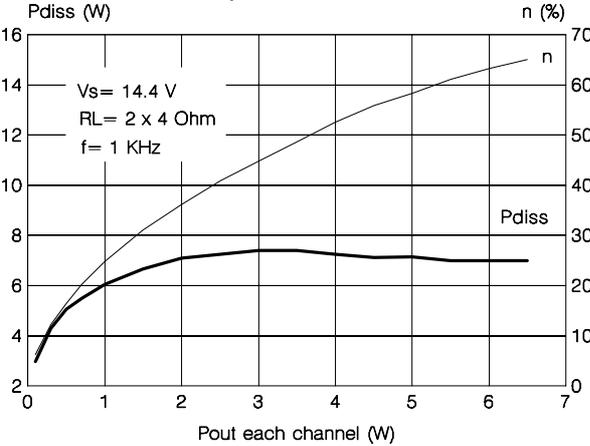
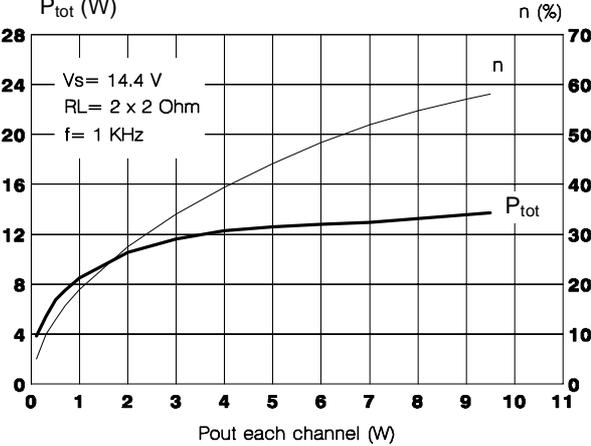
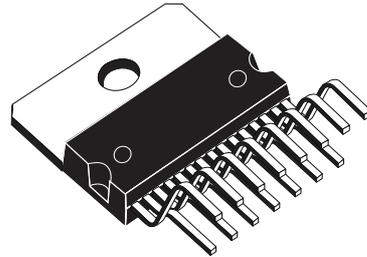


Figure 11: Total Power Dissipation and Efficiency vs. Output Power

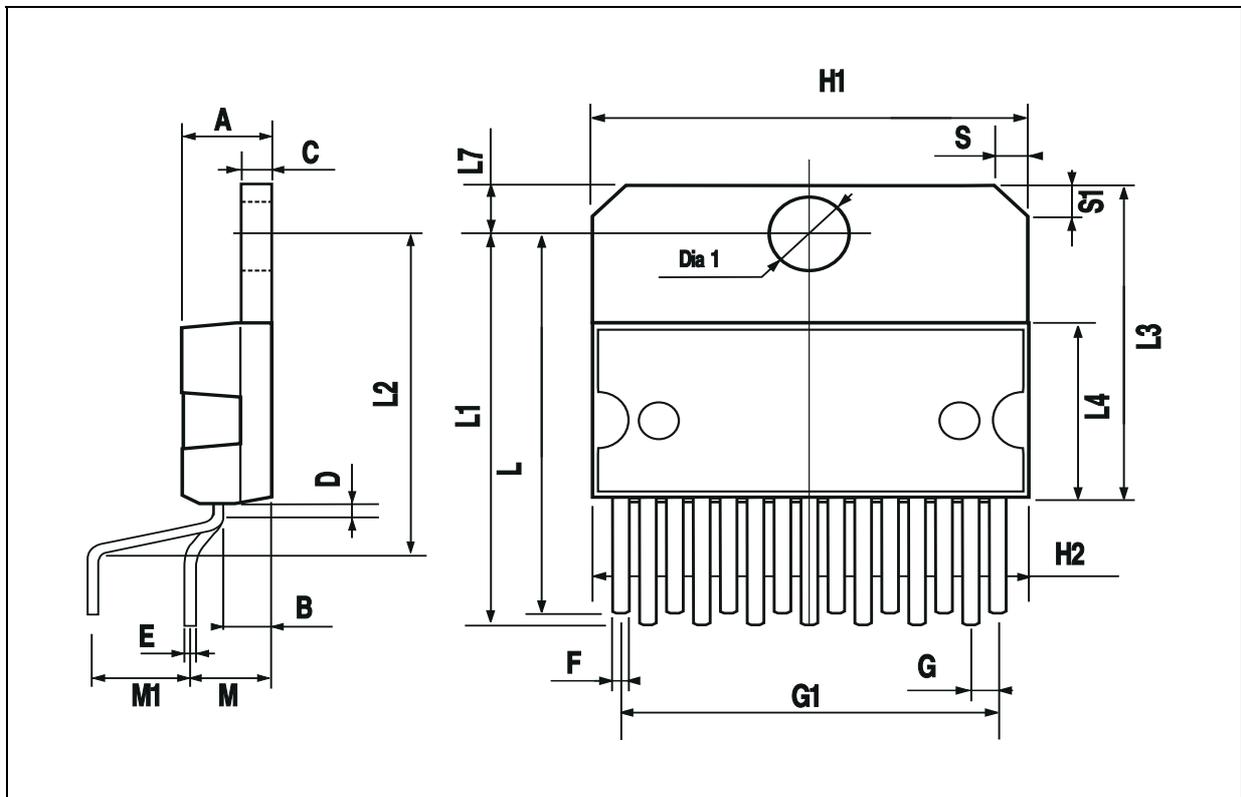


DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			5			0.197
B			2.65			0.104
C			1.6			0.063
D		1			0.039	
E	0.49		0.55	0.019		0.022
F	0.66		0.75	0.026		0.030
G	1.02	1.27	1.52	0.040	0.050	0.060
G1	17.53	17.78	18.03	0.690	0.700	0.710
H1	19.6			0.772		
H2			20.2			0.795
L	21.9	22.2	22.5	0.862	0.874	0.886
L1	21.7	22.1	22.5	0.854	0.870	0.886
L2	17.65		18.1	0.695		0.713
L3	17.25	17.5	17.75	0.679	0.689	0.699
L4	10.3	10.7	10.9	0.406	0.421	0.429
L7	2.65		2.9	0.104		0.114
M	4.25	4.55	4.85	0.167	0.179	0.191
M1	4.63	5.08	5.53	0.182	0.200	0.218
S	1.9		2.6	0.075		0.102
S1	1.9		2.6	0.075		0.102
Dia1	3.65		3.85	0.144		0.152

OUTLINE AND MECHANICAL DATA



Multiwatt15 V



Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

ST PRODUCTS ARE NOT DESIGNED OR AUTHORIZED FOR USE IN: (A) SAFETY CRITICAL APPLICATIONS SUCH AS LIFE SUPPORTING, ACTIVE IMPLANTED DEVICES OR SYSTEMS WITH PRODUCT FUNCTIONAL SAFETY REQUIREMENTS; (B) AERONAUTIC APPLICATIONS; (C) AUTOMOTIVE APPLICATIONS OR ENVIRONMENTS, AND/OR (D) AEROSPACE APPLICATIONS OR ENVIRONMENTS. WHERE ST PRODUCTS ARE NOT DESIGNED FOR SUCH USE, THE PURCHASER SHALL USE PRODUCTS AT PURCHASER'S SOLE RISK, EVEN IF ST HAS BEEN INFORMED IN WRITING OF SUCH USAGE, UNLESS A PRODUCT IS EXPRESSLY DESIGNATED BY ST AS BEING INTENDED FOR "AUTOMOTIVE, AUTOMOTIVE SAFETY OR MEDICAL" INDUSTRY DOMAINS ACCORDING TO ST PRODUCT DESIGN SPECIFICATIONS. PRODUCTS FORMALLY ESCC, QML OR JAN QUALIFIED ARE DEEMED SUITABLE FOR USE IN AEROSPACE BY THE CORRESPONDING GOVERNMENTAL AGENCY.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2013 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com

