

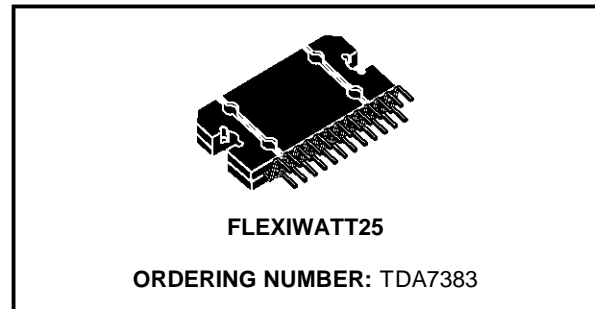
4 x 22W FOUR BRIDGE CHANNELS CAR RADIO AMPLIFIER

PRODUCT PREVIEW

- HIGH OUTPUT POWER CAPABILITY:
 - 4 x 30W max./4Ω EIAJ
 - 4 x 22W/4Ω @ 14.4V, 1KHz, 10%
 - 4 x 18.5W/4Ω @ 13.2V, 1KHz, 10%
- CLIPPING DETECTOR
- LOW DISTORTION
- LOW OUTPUT NOISE
- ST-BY FUNCTION
- MUTE FUNCTION
- AUTOMUTE AT MIN. SUPPLY VOLTAGE DETECTION
- DIAGNOSTICS FACILITY FOR:
 - CLIPPING
 - OUT TO GND SHORT
 - OUT TO V_S SHORT
 - THERMAL SHUTDOWN
- LOW EXTERNAL COMPONENT COUNT:
 - INTERNALLY FIXED GAIN (32dB)
 - NO EXTERNAL COMPENSATION
 - NO BOOTSTRAP CAPACITORS

PROTECTIONS:

- OUTPUT SHORT CIRCUIT TO GND, TO V_S , ACROSS THE LOAD

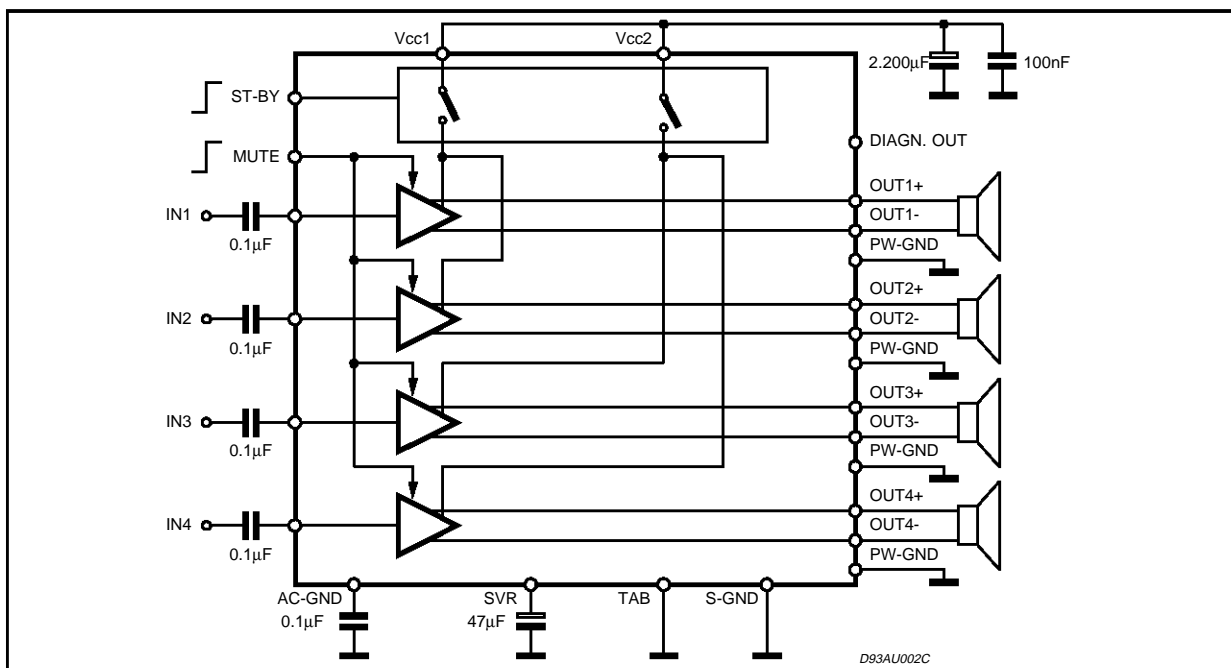


- VERY INDUCTIVE LOADS
- OVERRATING CHIP TEMPERATURE WITH SOFT THERMAL LIMITER
- LOAD DUMP VOLTAGE
- FORTUITOUS OPEN GND
- REVERSED BATTERY
- ESD PROTECTION

DESCRIPTION

The TDA7383 is a new technology class AB Audio Power Amplifier in Flexiwatt 25 package designed for high end car radio applications.

BLOCK AND APPLICATION DIAGRAM



TDA7383

DESCRIPTION (continued)

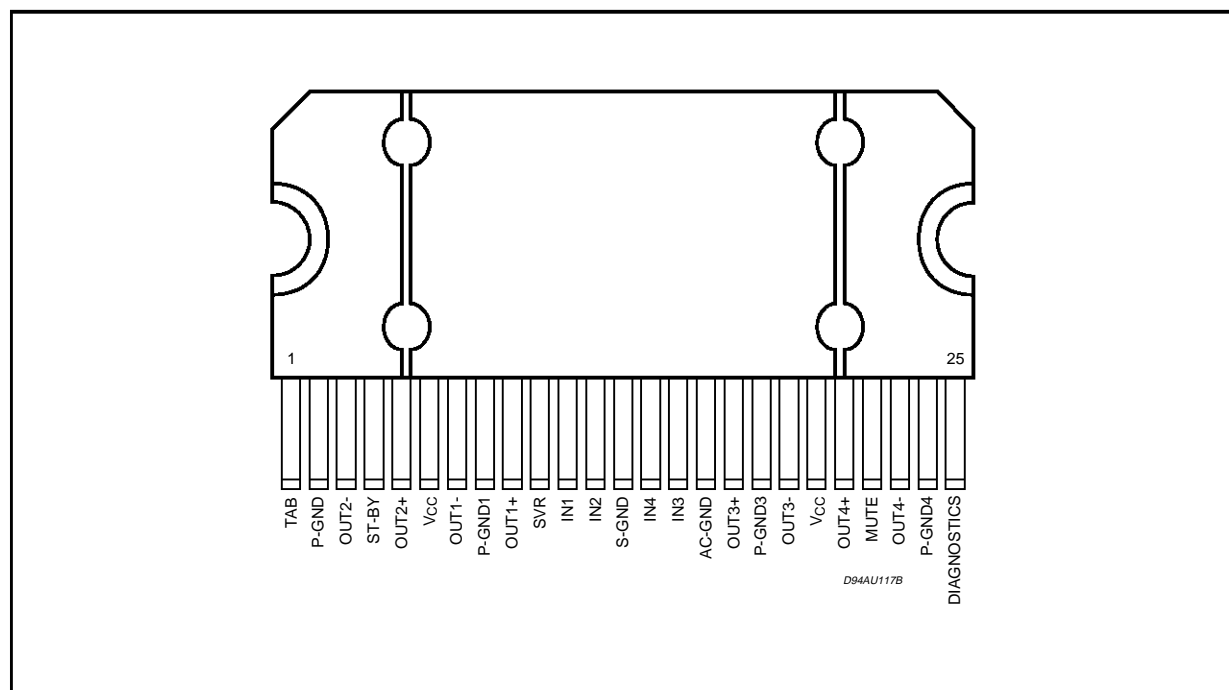
Thanks to the fully complementary PNP/NPN output configuration the TDA7383 allows a rail to rail output voltage swing with no need of bootstrap capacitors. The extremely reduced components count allows very compact sets.

The on-board clipping detector simplifies gain compression operations. The fault diagnostics makes it possible to detect mistakes during Car-Radio assembly and wiring in the car.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Operating Supply Voltage	18	V
$V_{CC(DC)}$	DC Supply Voltage	28	V
$V_{CC(pk)}$	Peak Supply Voltage (t = 50ms)	50	V
I_o	Output Peak Current: Repetitive (Duty Cycle 10% at f = 10Hz)	4.5	A
	Non Repetitive (t = 100 μ s)	5.5	A
P_{tot}	Power dissipation, (T _{case} = 70°C)	80	W
T_j	Junction Temperature	150	°C
T_{stg}	Storage Temperature	- 55 to 150	°C

PIN CONNECTION (Top view)



THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th j-case}$	Thermal Resistance Junction to Case	Max. 1	°C/W

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
I_{q1}	Quiescent Current			180		mA
V_{OS}	Output Offset Voltage				200	mV
G_v	Voltage Gain		31	32	33	dB
P_o	Output Power	THD = 10%	18	22		W
		THD = 1%		18		W
		THD = 10%; $V_S = 14V$	21	W		
		THD = 5%; $V_S = 14V$	19	W		
		THD = 1%; $V_S = 14V$	17	W		
		THD = 10%; $V_S = 13.2V$	18.5	W		W
		THD = 1%; $V_S = 13.2V$	15	W		W
$P_{o\ max}$	Max. Output Power	EIAJ RULES		30		W
THD	Distortion	$P_o = 1W$			0.3	%
e_{No}	Output Noise	"A" Weighted Bw = 20Hz to 20KHz		75 100	150	μV μV
SVR	Supply Voltage Rejection	$f = 100Hz$	50	60		dB
f_{cl}	Low Cut-Off Frequency			20		Hz
f_{ch}	High Cut-Off Frequency		75			KHz
R_i	Input Impedance		70	100		K Ω
C_T	Cross Talk	$f = 1KHz$	50	70		dB
I_{SB}	St-By Current Consumption	St-By = LOW			100	μA
$V_{SB\ out}$	St-By OUT Threshold Voltage	(Amp: ON)	3.5			V
$V_{SB\ IN}$	St-By IN Threshold Voltage	(Amp: OFF)			1.5	V
A_M	Mute Attenuation	$V_O = 1V_{rms}$	70	90		dB
$V_{M\ out}$	Mute OUT Threshold Voltage	(Amp: Play)	3.5			V
$V_{M\ in}$	Mute IN Threshold Voltage	(Amp: Mute)			1.5	V
$I_m(L)$	Muting Pin Current	$V_{MUTE} = 1.5V$ (Source Current)	10	13	16	μA
I_{CDOFF}	Clipping Detector "OFF" Output Average Current	THD = 1% (*)		100		μA
I_{CDON}	Clipping Detector "ON" Output Average Current	THD = 5% (*)		190		μA

(*) Diagnostics output pulled-up to 5V with 10K Ω series resistor.

Figure 1: Standard Test and Application Circuit

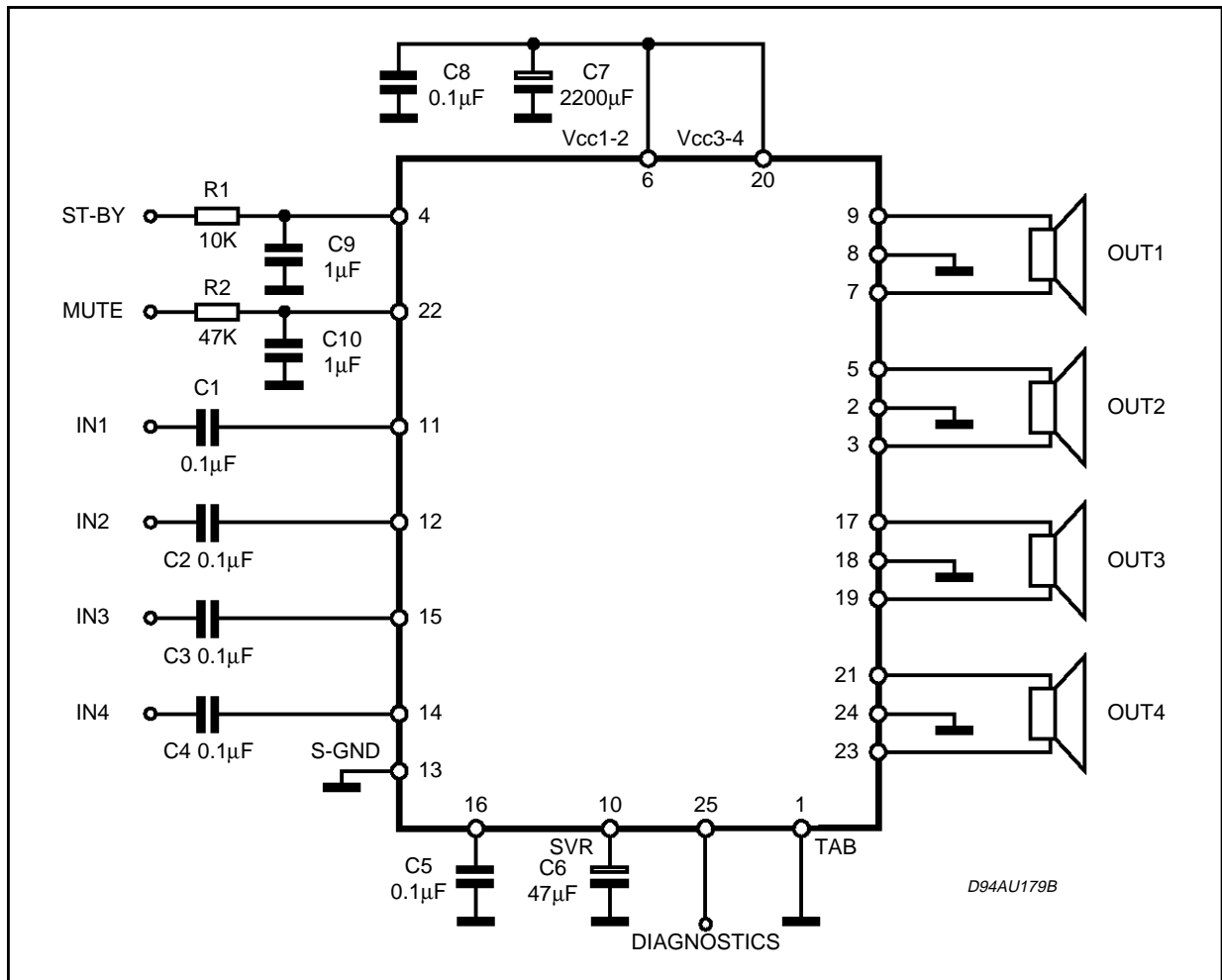
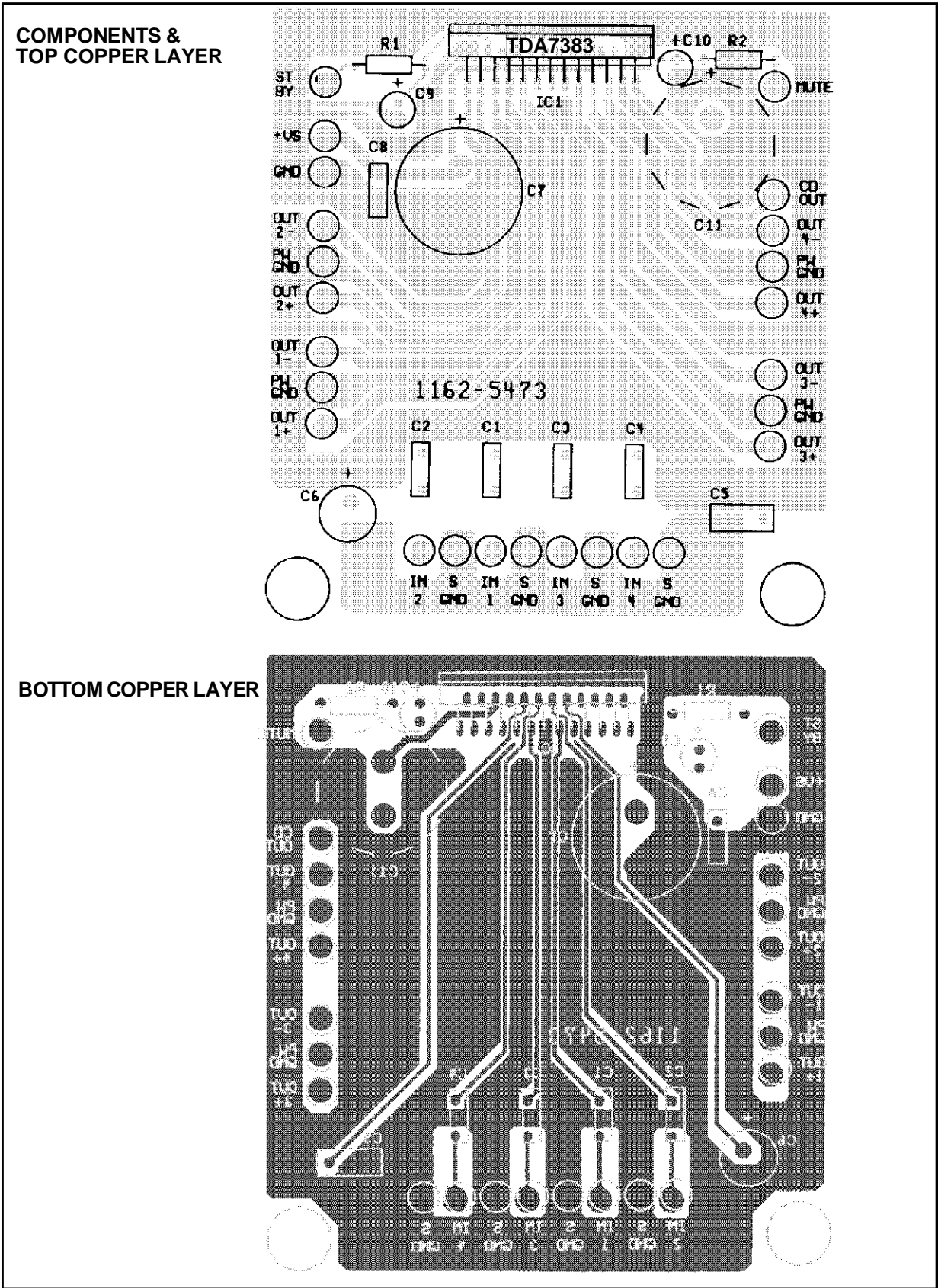
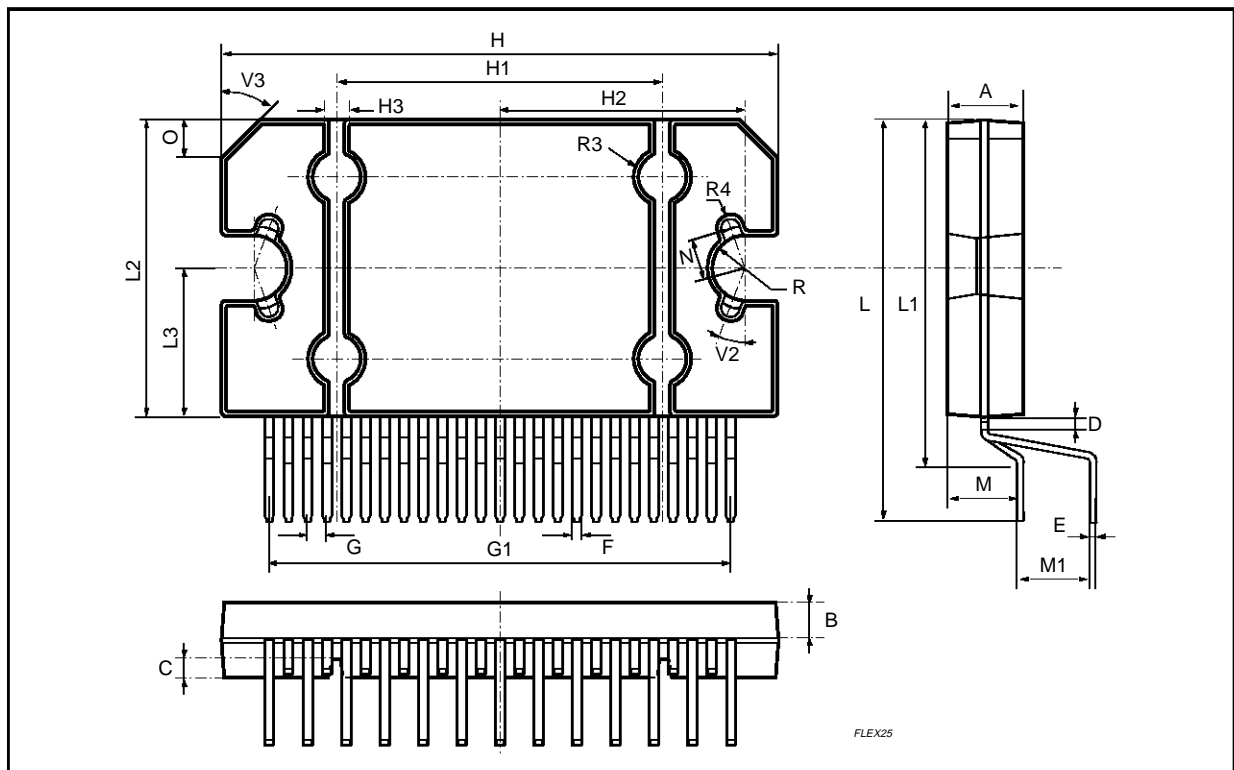


Figure 2: P.C.B. and component layout of the figure 1 (1:1 scale)



FLEXIWATT25 PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.45		4.65	0.175		0.183
B	1.80	1.90	2.00	0.070	0.074	0.079
C		1.40			0.055	
D	0.75	0.90	1.05	0.029	0.035	0.041
E	0.37	0.39	0.42	0.014	0.015	0.016
F			0.57			0.022
G	0.80	1.00	1.20	0.031	0.040	0.047
G1	23.75	24.00	24.25	0.935	0.945	0.955
H	28.90	29.23	29.30	1.138	1.150	1.153
H1		17.00			0.669	
H2		12.80			0.503	
H3		0.80			0.031	
L	21.57	21.97	22.37	0.849	0.865	0.880
L1	18.57	18.97	19.37	0.731	0.786	0.762
L2	15.50	15.70	15.90	0.610	0.618	0.626
L3	7.70	7.85	7.95	0.303	0.309	0.313
M	3.70	4.00	4.30	0.145	0.157	0.169
M1	3.60	4.00	4.40	0.142	0.157	0.173
N		2.20			0.086	
O		2			0.079	
R		1.70			0.067	
R4		0.50			0.019	
V2				20°		
V3				45°		



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