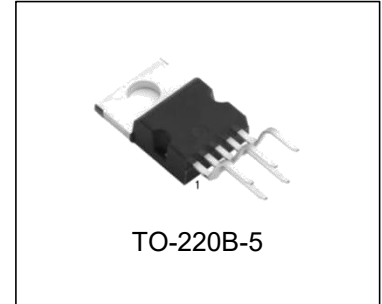


## 20W AUDIO POWER AMPLIFIER

### FEATURES

- Up to 30 watts output power
- Avo typically 90 dB
- Low distortion: 0.015%, 1kHz, 20W
- Wide power bandwidth: 70kHz
- Protection for AC and DC short circuits to ground
- Thermal protection with parole circuit
- High current capability: 4A
- Wide supply range 16V-60V
- Internal output protection diodes
- 94 dB ripple rejection



### ORDERING INFORMATION

DEVICE	Package Type	MARKING	Packing	Packing Qty
LM1875TB	TO-220B-5	LM1875	TUBE	1000pcs/Box
LM1875T	TO-220B-5	LM1875	TUBE	1000pcs/Box

## DESCRIPTION

The HG LM1875 is a monolithic power amplifier offering very low distortion and high quality performance for consumer audio applications.

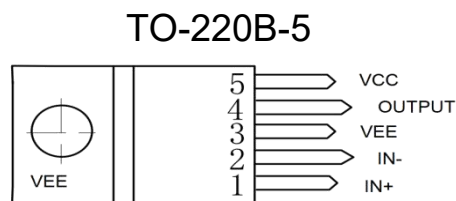
The HG LM1875 delivers 20 watts into a 4  $\Omega$  or 8  $\Omega$  load on  $\pm 25V$  supplies. Using an 8  $\Omega$  load and +30V supplies, over 30 watts of power may be delivered. The amplifier is designed to operate with a minimum of external components. Device overload protection consists of both internal current limit and thermal shutdown.

The HG LM1875 design takes advantage of advanced circuit techniques and processing to achieve extremely low distortion levels even at high output power levels. Other outstanding features include high gain, fast slew rate and a wide power bandwidth, large output voltage swing, high current capability, and a very wide supply range. The amplifier is internally compensated and stable for gains of 10 or greater.

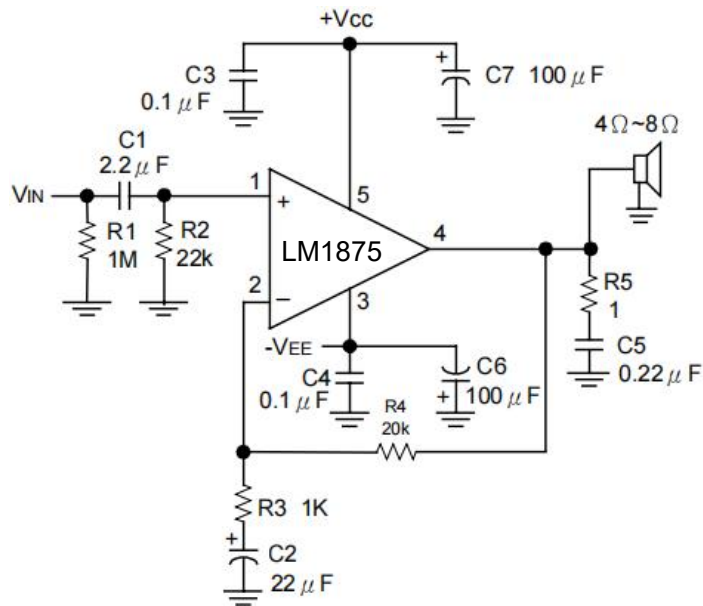
## APPLICATIONS

- High performance audio systems
- Bridge amplifiers
- Stereo phonographs
- Servo amplifiers
- Instrument systems

## PIN CONNECTIONS



## TYPICAL APPLICATIONS



## ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	$V_s$	60	V
Input Voltage	$V_{IN}$	$-V_{EE} \sim V_{CC}$	V
Storage Temperature	$T_{stg}$	$-65 \sim +150$	$^{\circ}C$
Junction Temperature	$T_J$	150	$^{\circ}C$
Lead Temperature(Soldering,10 seconds)	$T_L$	245	$^{\circ}C$

**Note:** Absolute Maximum Ratings indicate limits beyond which damage to the device may occur. Operating Ratings indicate conditions for which the device is intended to be functional, but specific performance is not ensured.

## THERMAL DATA

DESCRIPTION	SYMBOL	RATING	UNIT
Thermal Resistance, Junction-case	$\theta_{JC}$	3	$^{\circ}C/W$
Thermal Resistance, Junction-ambient	$\theta_{JA}$	73	$^{\circ}C/W$

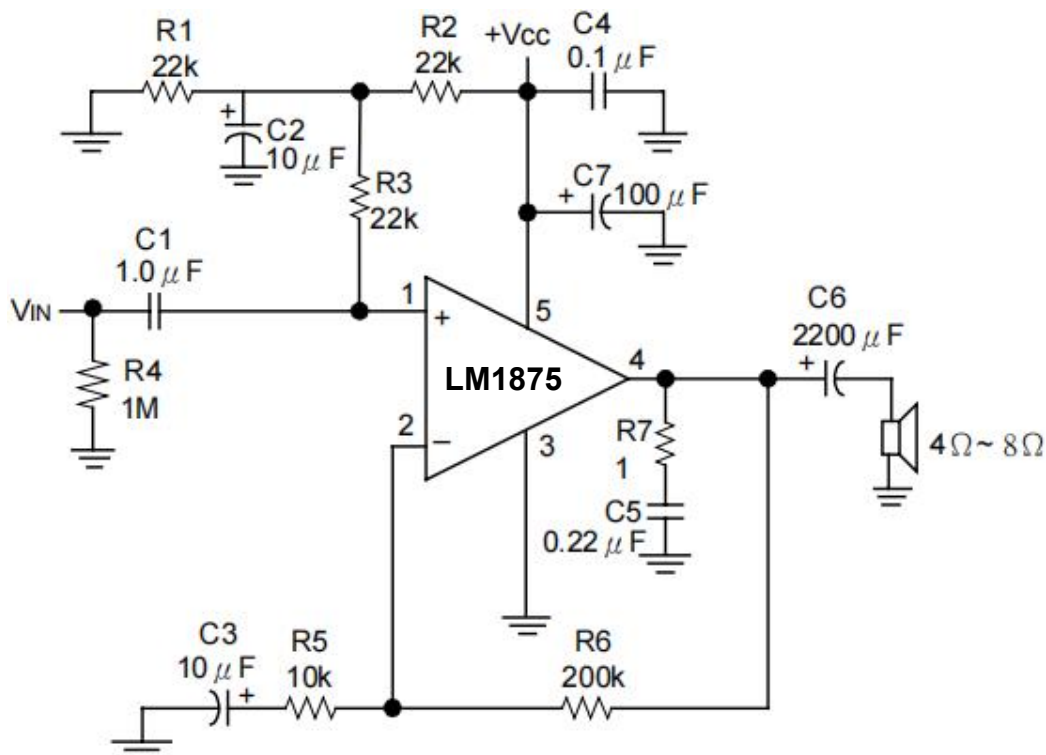
## ELECTRICAL CHARACTERISTICS

$V_{CC}=+25V, -V_{EE}=-25V, T_{AMBIENT}=25^{\circ}C, R_L=8\Omega, A_v=20(26dB), f_o=1kHz$ , unless otherwise specified.

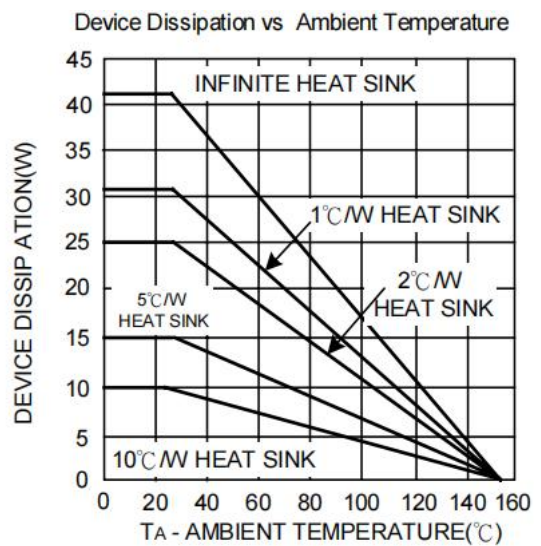
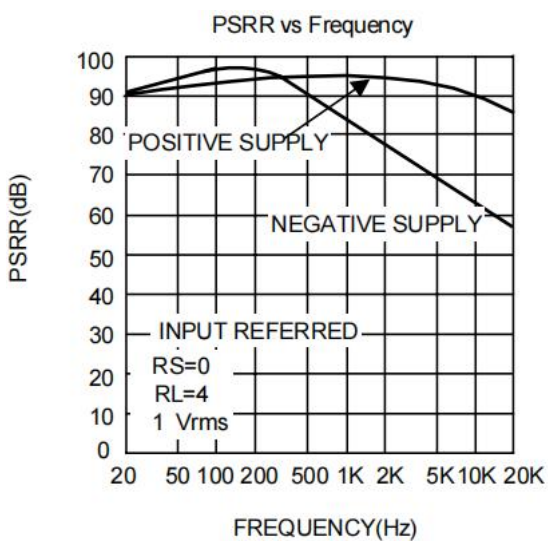
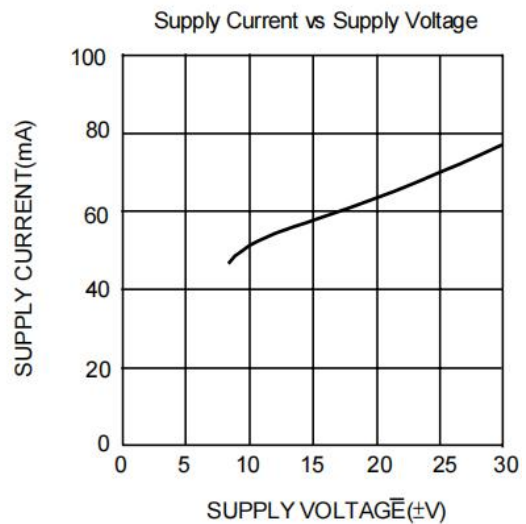
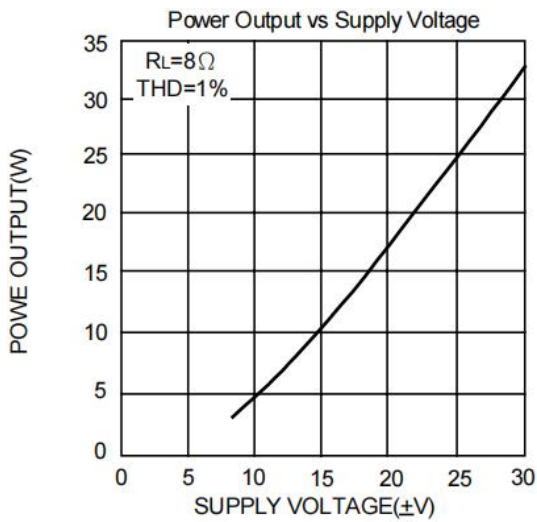
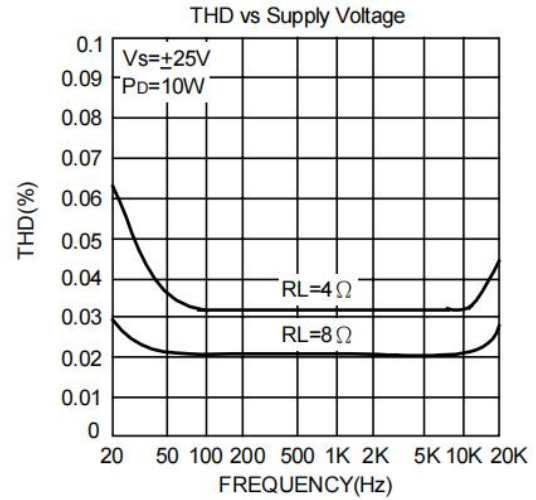
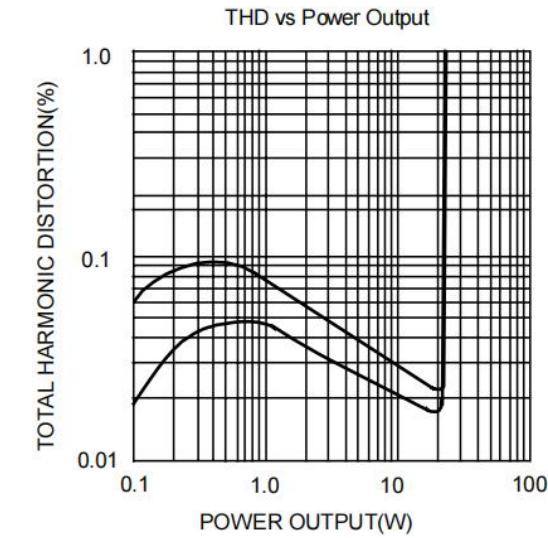
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Current	$V_s$	$P_{OUT}=0W$		70	100	mA
Output Power(Note 1)	$P_o$	$T_{HD}=1\%$		25		W
Total Harmonic Distortion (Note 1)	THD	$P_{OUT}=20W, f_o=1kHz$ $P_{OUT}=20W, f_o=20kHz$ $P_{OUT}=20W, R_L=4\Omega, f_o=1kHz$ $P_{OUT}=20W, R_L=4\Omega, f_o=20kHz$		0.015 0.05 0.022 0.07	0.4 0.6	%
Offset Voltage	$V_{os}$			$\pm 1$	$\pm 15$	mV
Input Bias current	$I_{ib}$			$\pm 0.2$	$\pm 2$	$\mu A$
Input Offset Current	$I_{IO}$			0	$\pm 0.5$	$\mu A$
Gain-Bandwidth Product	GBW	$F_o=20kHz$		5.5		MHz
Open Loop Gain	$G_v$	DC		90		dB
Power Supply Rejection Ratio	PSRR	$V_{cc}, 1kHz, 1 V_{rms} V_{EE}, 1kHz, 1 V_{rms}$		95 83	52 52	dB
Max Slew Rate	SR	$20W, 8\Omega, 70kHz BW$		8		$V/\mu s$
Current Limit	$I_{LIM}$	$V_{OUT}=V_{SUPPLY} - 10V$		4	3	A
Equivalent Input Noise Voltage	$e_n$	$R_s=600\Omega, CCIR$		3		$\mu V_{rms}$

**Note 1:** Assumes the use of a heat sink having a thermal resistance of  $1^{\circ}C/W$  and no insulator with an ambient temperature of  $25^{\circ}C$ . Because the output limiting circuitry has a negative temperature coefficient, the maximum output power delivered to a  $4\Omega$  load may be slightly reduced when the tab temperature exceeds  $55^{\circ}C$ .

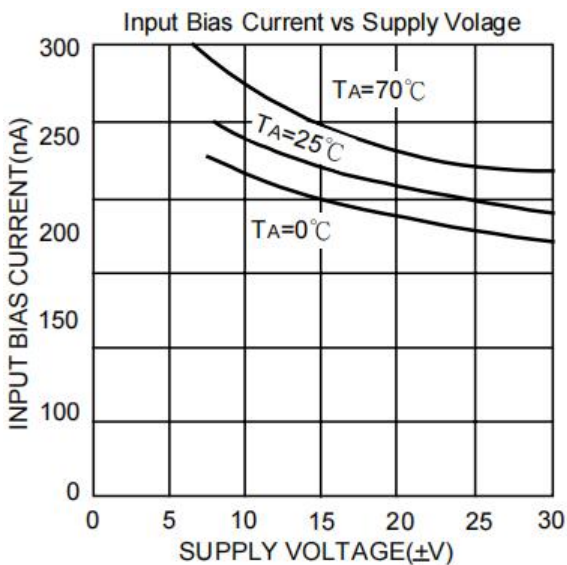
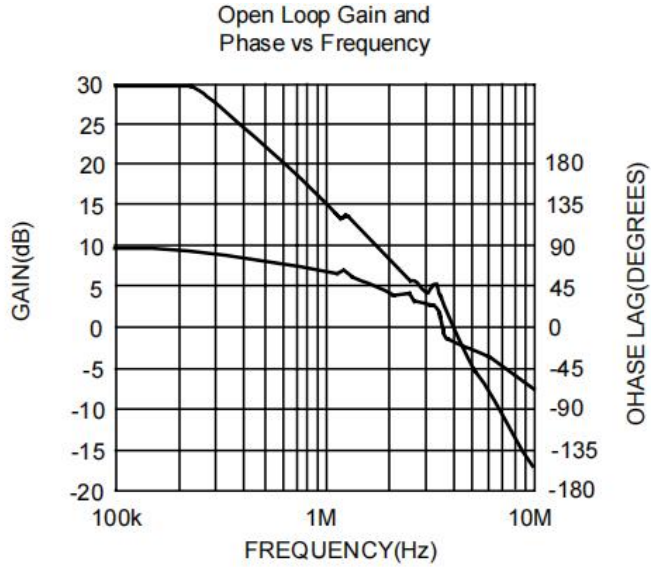
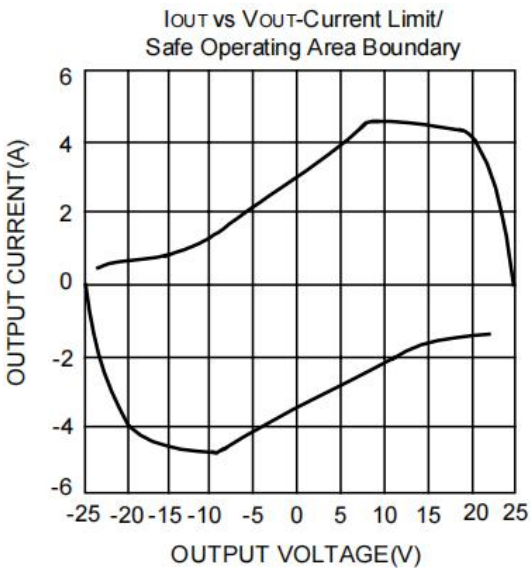
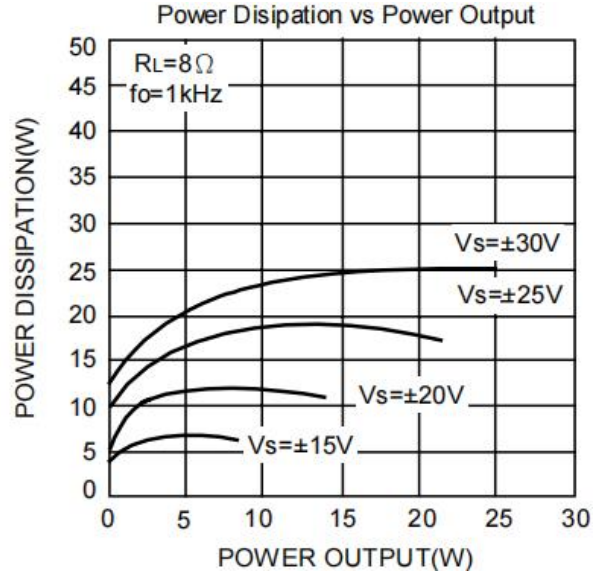
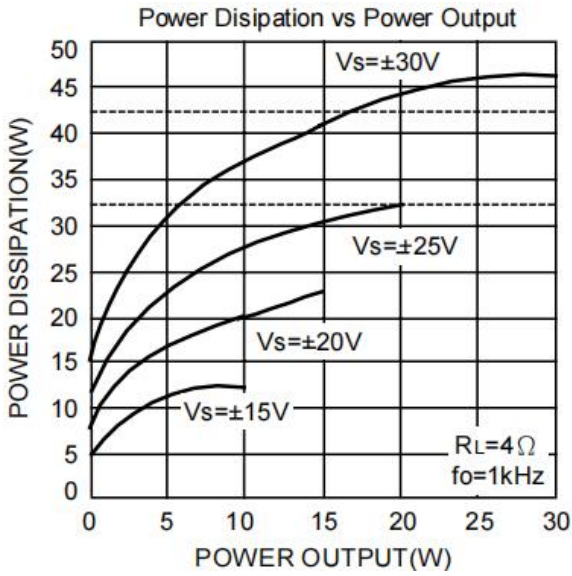
## TYPICAL APPLICATIONS(CONTINUED)



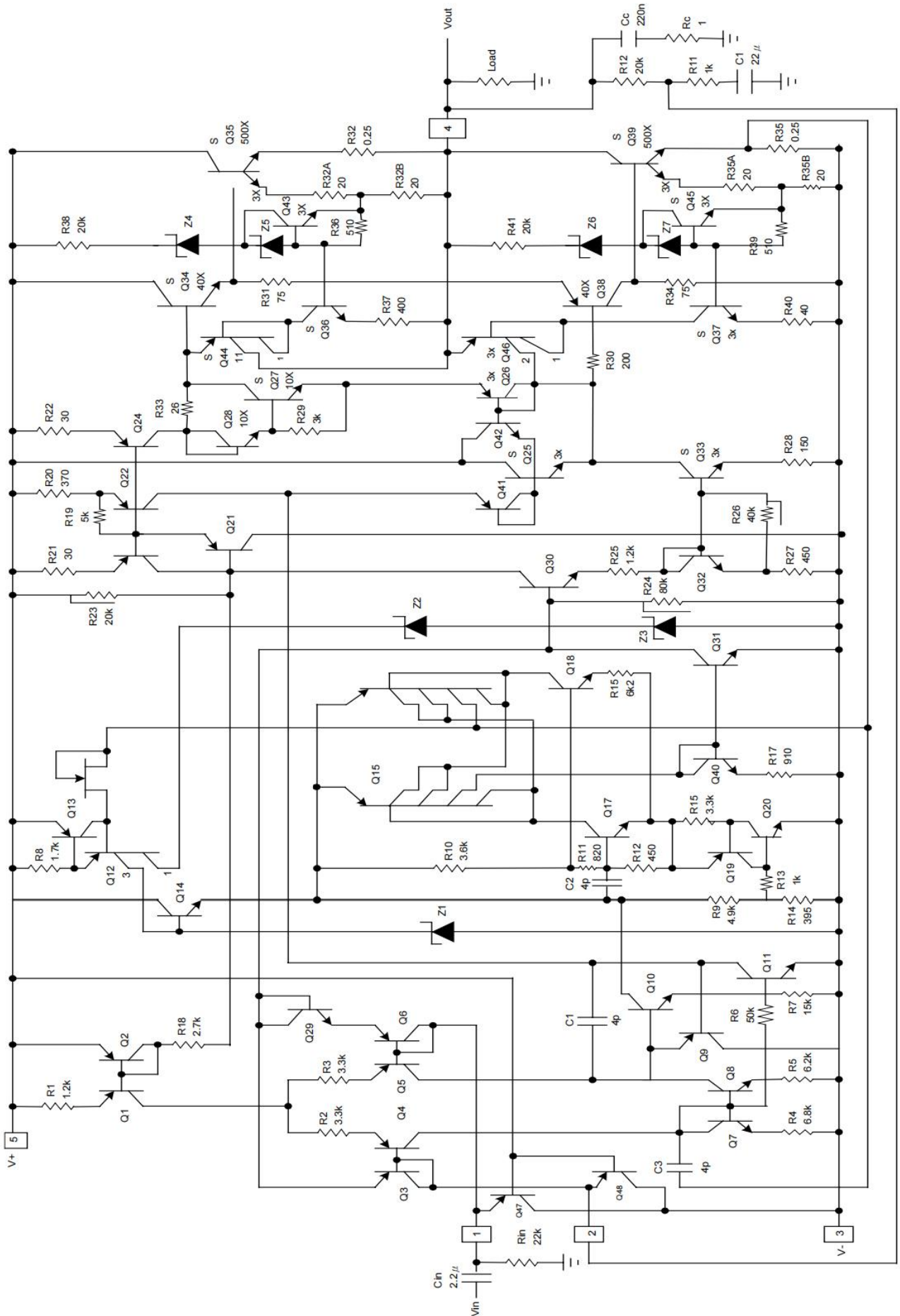
**TYPICAL PERFORMANCE CHARACTERISTICS**



INTERFACE=1°C/W  
See Application Hints.

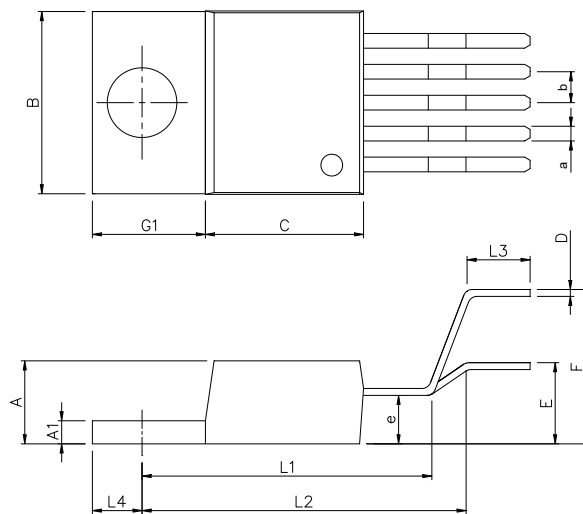


\* Thermal shutdown with infinite heat sink  
\*\*Thermal shutdown with  $1^\circ C/W$  heat sink



**Physical Dimensions**

TO220B-5



**Dimensions In Millimeters(TO220B-5)**

Symbol:	A	A1	B	C	C1	D	E	F	L1	L2	L3	L4	a	b	e
<b>Min:</b>	4.45	1.22	10	8.45	6.10	0.32	4.24	8.24	15.45	17.65	3.00	2.64	0.76	1.70	2.67
<b>Max:</b>	4.62	1.32	10.4	8.95	6.60	0.42	4.70	8.70	16.25	18.25	3.85	2.84	1.02	BSC	TYP



## Revision History

DATE	REVISION	PAGE
2016-1-9	New	1-10
2023-10-8	Modify the package dimension diagram TO220-5、 Update encapsulation type 、 Update Lead Temperature、 Updated TO-220 B dimension、 Add annotation for Maximum Ratings.Correct the packages Type.	1、 3、 8

**IMPORTANT STATEMENT:**

Huaguan Semiconductor reserves the right to change its products and services without notice. Before ordering, the customer shall obtain the latest relevant information and verify whether the information is up to date and complete. Huaguan Semiconductor does not assume any responsibility or obligation for the altered documents.

Customers are responsible for complying with safety standards and taking safety measures when using Huaguan Semiconductor products for system design and machine manufacturing. You will bear all the following responsibilities: Select the appropriate Huaguan Semiconductor products for your application; Design, validate and test your application; Ensure that your application meets the appropriate standards and any other safety, security or other requirements. To avoid the occurrence of potential risks that may lead to personal injury or property loss.

Huaguan Semiconductor products have not been approved for applications in life support, military, aerospace and other fields, and Huaguan Semiconductor will not bear the consequences caused by the application of products in these fields. All problems, responsibilities and losses arising from the user's use beyond the applicable area of the product shall be borne by the user and have nothing to do with Huaguan Semiconductor, and the user shall not claim any compensation liability against Huaguan Semiconductor by the terms of this Agreement.

The technical and reliability data (including data sheets), design resources (including reference designs), application or other design suggestions, network tools, safety information and other resources provided for the performance of semiconductor products produced by Huaguan Semiconductor are not guaranteed to be free from defects and no warranty, express or implied, is made. The use of testing and other quality control technologies is limited to the quality assurance scope of Huaguan Semiconductor. Not all parameters of each device need to be tested.

The documentation of Huaguan Semiconductor authorizes you to use these resources only for developing the application of the product described in this document. You have no right to use any other Huaguan Semiconductor intellectual property rights or any third party intellectual property rights. It is strictly forbidden to make other copies or displays of these resources. You should fully compensate Huaguan Semiconductor and its agents for any claims, damages, costs, losses and debts caused by the use of these resources. Huaguan Semiconductor accepts no liability for any loss or damage caused by infringement.