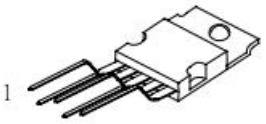
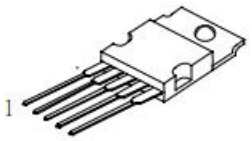
General Description

The LM1875T is a monolithic power amplifier offering very low distortion and high quality performance for consumer audio applications.
The LM1875T delivers 20 wants into a 4 Ω or 8Ω load on +25V supplies.Using an 8 Ω load and +30V supplies,over 30 watts of power may be delivered.The amplifier is designed to operate with a minimum ofexternal components.Device overload protection consists of both internal current limit and thernal shutdown.
The LM1875T 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.



TO-220B



TO-220-5

1: +IN 2: -IN 3: -VEE
4: Output 5: Vcc

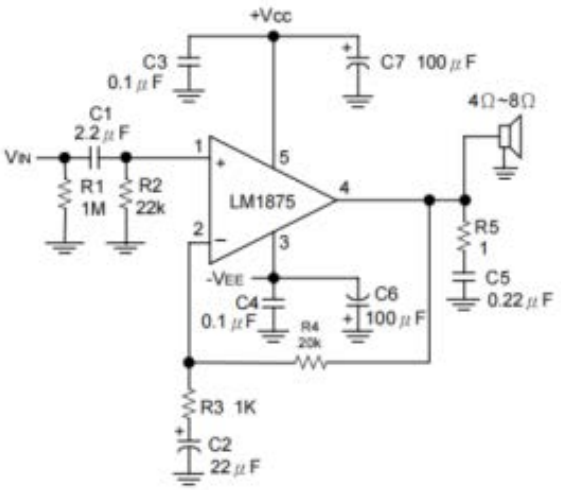
Features

- 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
- Themal protection with parole circuit
- High current capability: 4A
- Wide supply range 16V-60V
- Internal output protection diodes
- 94 dB ripple rejection

Applica Tions

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

Typical Applications



Absolute Maximum Ratings

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	Vs	60	V
Input Voltage	V_{IN}	$-V_{EE}$ ~ Vcc	V
Storage Temperature	Tstg	-65 ~ +150	℃
Junction Temperature	T_J	150	℃
Lead Temperature(Soldering,10 seconds)	T_L	260	℃

Thermal Data

DESCRIPTION	SYMBOL	RATING	UNIT
Thermal Resistance, Junction-case	θ_{JC}	3	℃/W
Thermal Resistance, Junction-ambient	θ_{JA}	73	℃/W

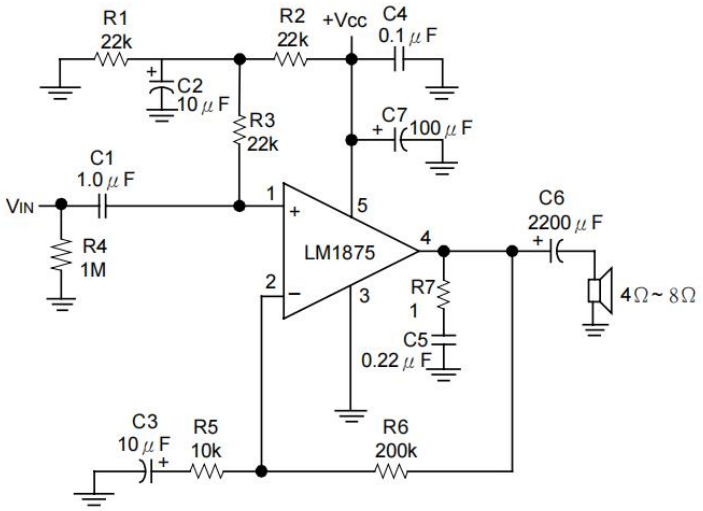
Eelctrical Characteristics

Vcc=+25V,$-V_{EE}$=-25V,$T_{AMBIENT}$=25℃,RL=8Ω,Av=20(26dB),fo=1kHz,unless otherwise .

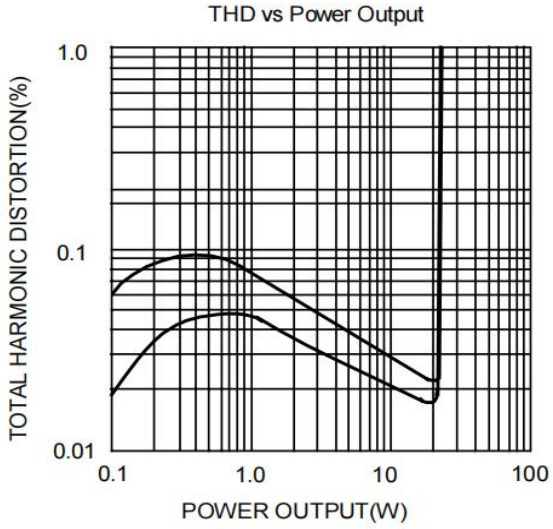
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Current	Vs	P_{OUT}=0W		70	100	mA
Output Power(Note 1)	Po	THD=1%		25		W
Total Harmonic Distortion (Note 1)	THD	P_{OUT}=20W,fo=1kHz P_{OUT} =20W, fo =20kHz P_{OUT} =20W,RL=4Ω,fo=1kHz P_{OUT} =20W,RL=4Ω,fo=20kHz		0.015 0.05 0.022 0.07	0.4 0.6	%
Offset Voltage	Vos			±1	±15	mV
Input Bias current	Iib			±0.2	±2	μA
Input Offset Current	I_{IO}			0	±0.5	μA
Gain-Bandwidth Product	GBW	Fo=20kHz		5.5		MHz
Open Loop Gain	Gv	DC		90		dB
Power Supply Rejection Ratio	PSRR	Vcc,1kHz,1 Vrms V_{EE},1kHz,1 Vrms		95 83	52 52	dB
Max Slew Rate	SR	20W,8Ω,70kHz BW		8		V/μs
Current Limit	I_{LIM}	VOUT=VSUPPLY – 10V		4	3	A
Equivalent Input Noise Voltage	e_n	Rs=600Ω,CCIR		3		μVrms

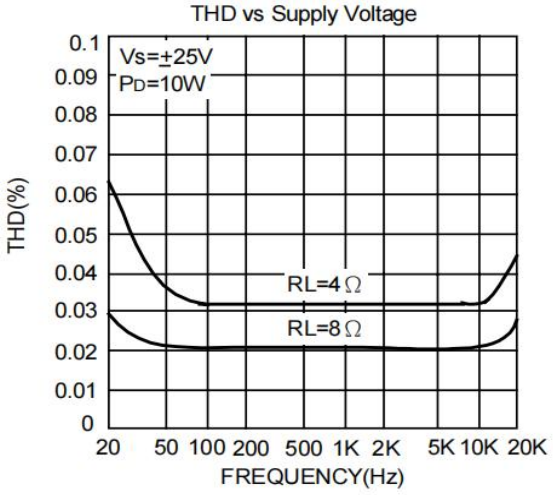
Note 1: Assumes the use of a heat sink having a thermal resistance of 1℃/W and no insulator with an ambient temperature of 25℃.Because the output limiting circuitry has a negative temperature coefficient,the maximum output power delivered to a 4Ω load may be slightly reduced when the tab temperature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

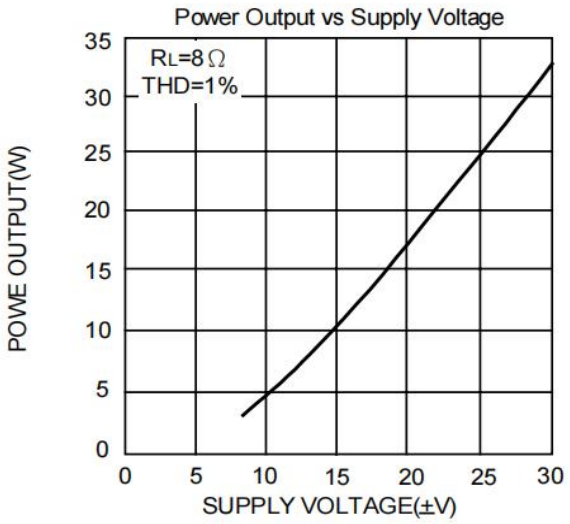
Typical Applications(Continued)

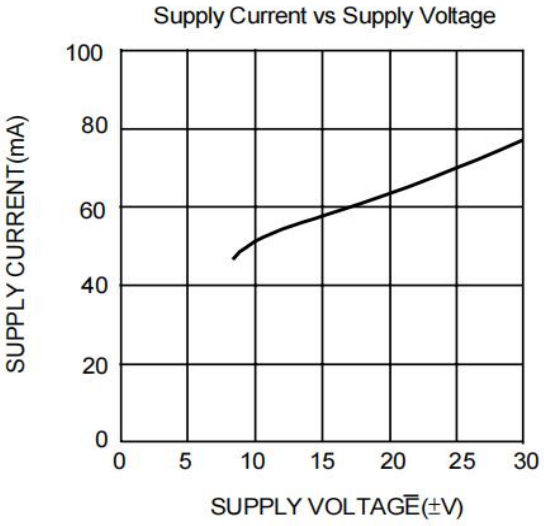


Typical Perforance Characteristics

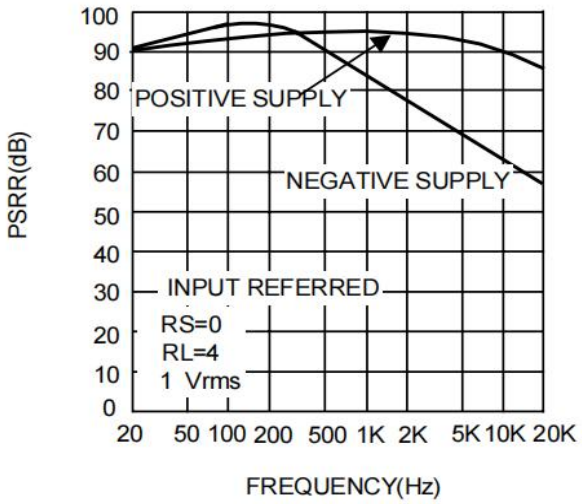




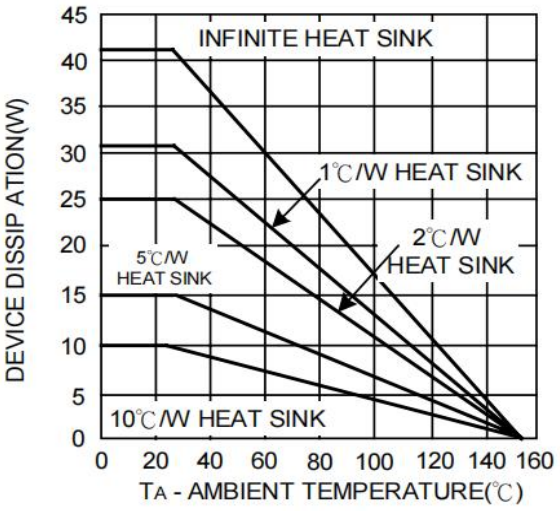




PSRR vs Frequency

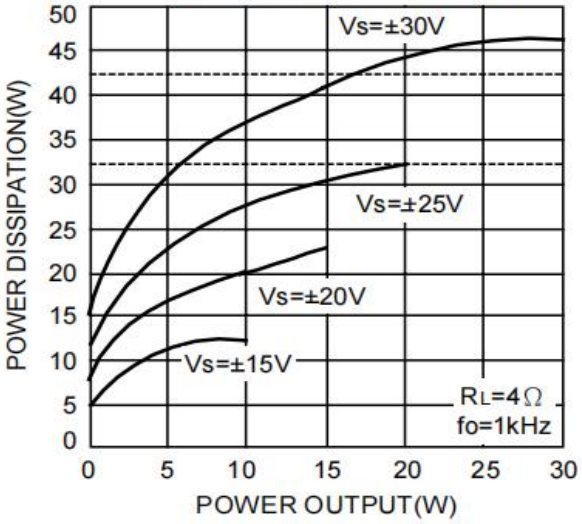


Device Dissipation vs Ambient Temperature

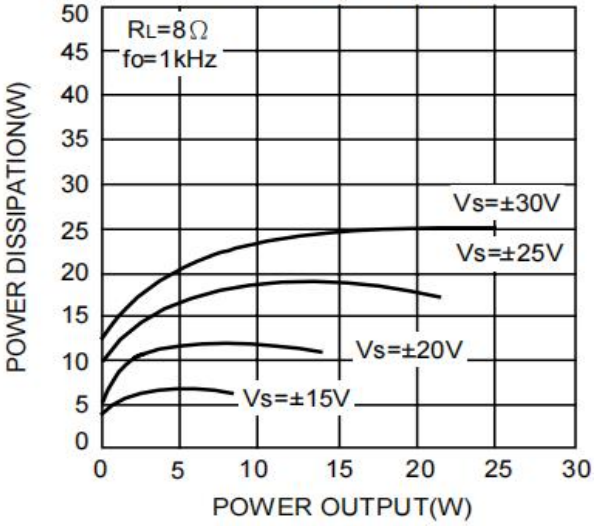


INTERFACE=1℃/W
See Application Hints.

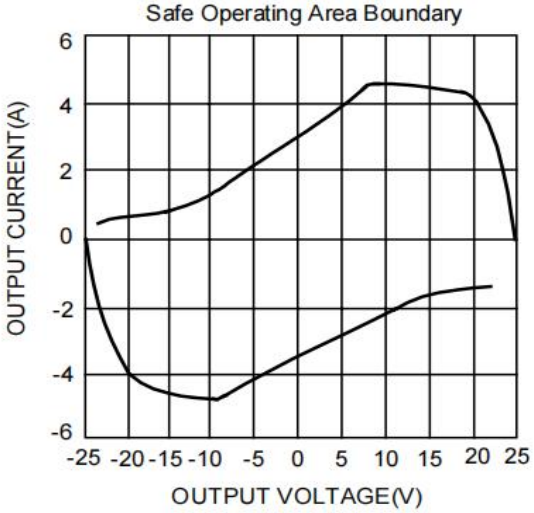
Power Disipation vs Power Output



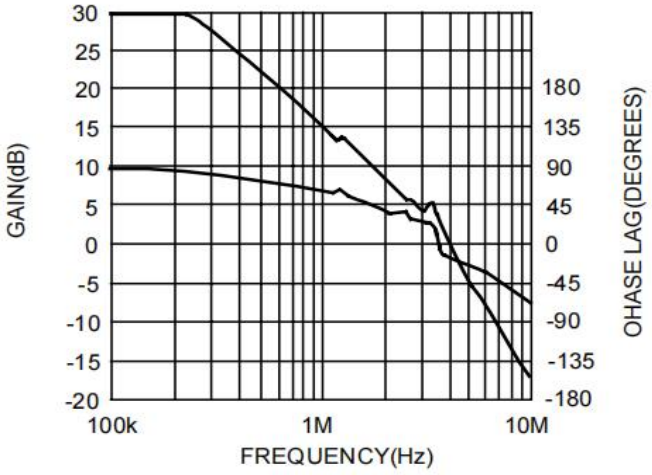
Power Disipation vs Power Output

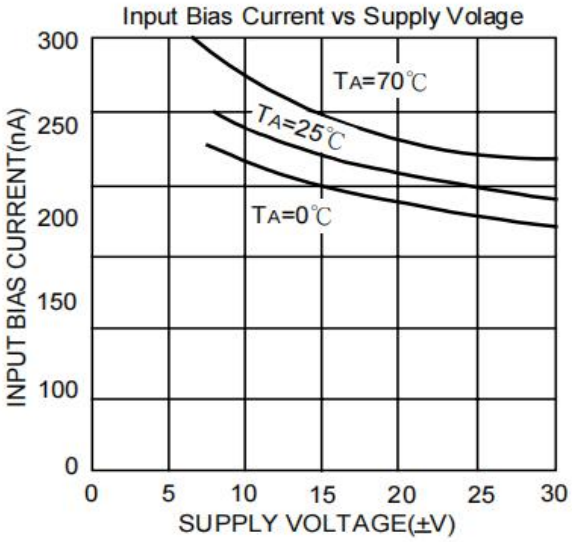


IOUT vs VOUT-Current Limit/
Safe Operating Area Boundary



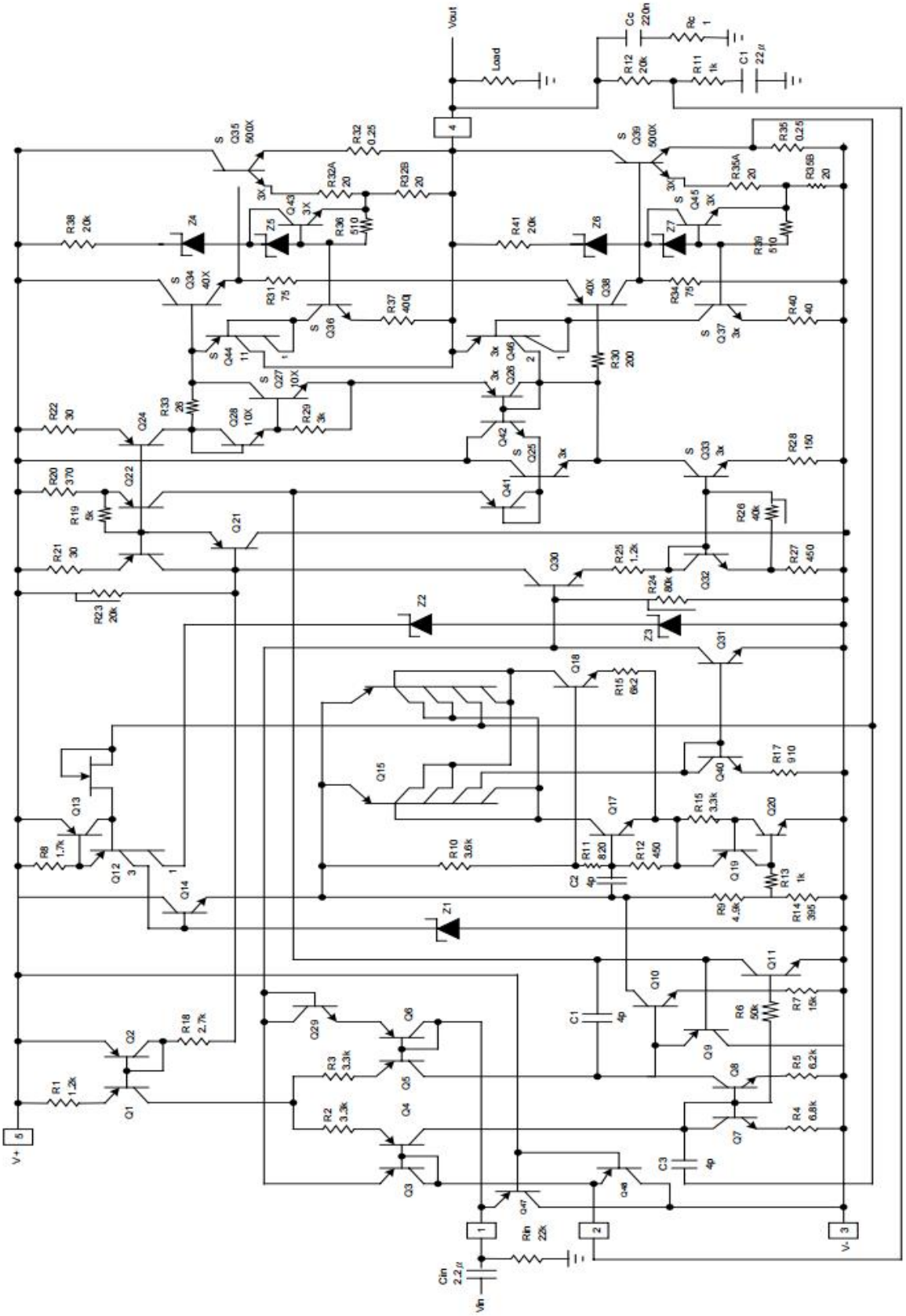
Open Loop Gain and
Phase vs Frequency





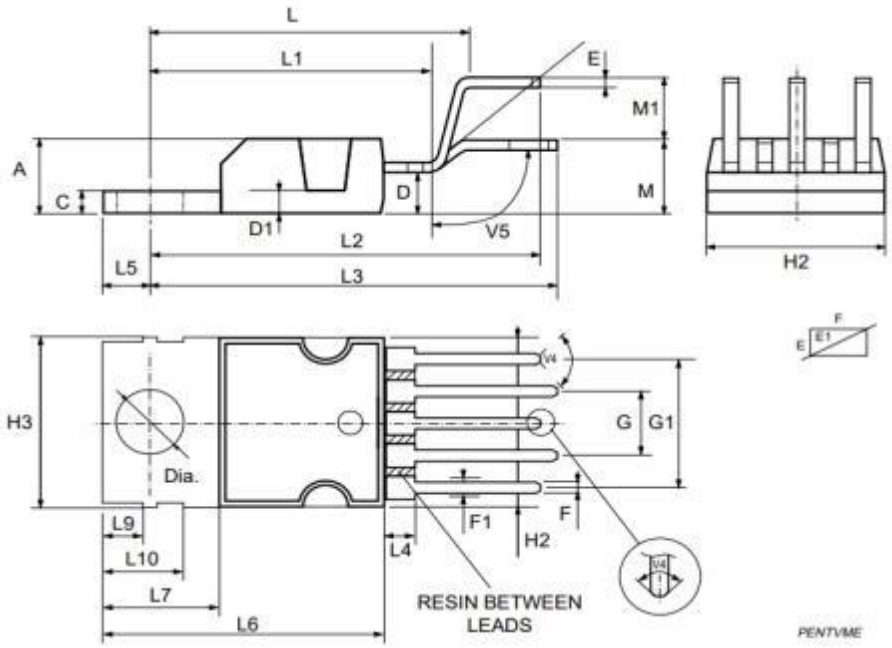
* Thermal shutdown with infinite heat sink
**Thermal shutdown with 1℃/W heat sink

Block Diagram



TO-252-5L

Unit : mm



DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			4.8			0.189
C			1.37			0.054
D	2.4		2.8	0.094		0.110
D1	1.2		1.35	0.047		0.053
E	0.35		0.55	0.014		0.022
E1	0.76		1.19	0.030		0.047
F	0.8		1.05	0.031		0.041
F1	1.0		1.4	0.039		0.055
G	3.2	3.4	3.6	0.126	0.134	0.142
G1	6.6	6.8	7.0	0.260	0.268	0.276
H2			10.4			0.409
H3	10.05		10.4	0.396		0.409
L	17.55	17.85	18.15	0.691	0.703	0.715
L1	15.55	15.75	15.95	0.612	0.620	0.628
L2	21.2	21.4	21.6	0.831	0.843	0.850
L3	22.3	22.5	22.7	0.878	0.886	0.894
L4			1.29			0.051
L5	2.6		3.0	0.102		0.118
L6	15.1		15.8	0.594		0.622
L7	6.0		6.6	0.236		0.260
L9	2.1		2.7	0.008		0.106
L10	4.3		4.8	0.17		0.189
M	4.23	4.5	4.75	0.167	0.178	0.187
M1	3.75	4.0	4.25	0.148	0.157	0.167
V4	40° (typ.)					
V5	90° (typ.)					
Dia	3.65		3.85	0.144		0.152

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