

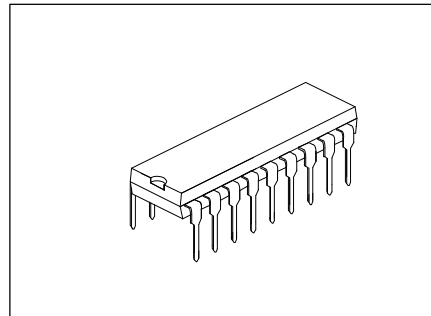
UTC1517

LINEAR INTEGRATED CIRCUIT

2 × 6 W stereo power amplifier

DESCRIPTION

The UTC1517 is an integrated class-B dual output amplifier in a plastic single in-line medium power package with fin and a plastic heat-dissipating dual in-line package. The device is primarily developed for multi-media applications.



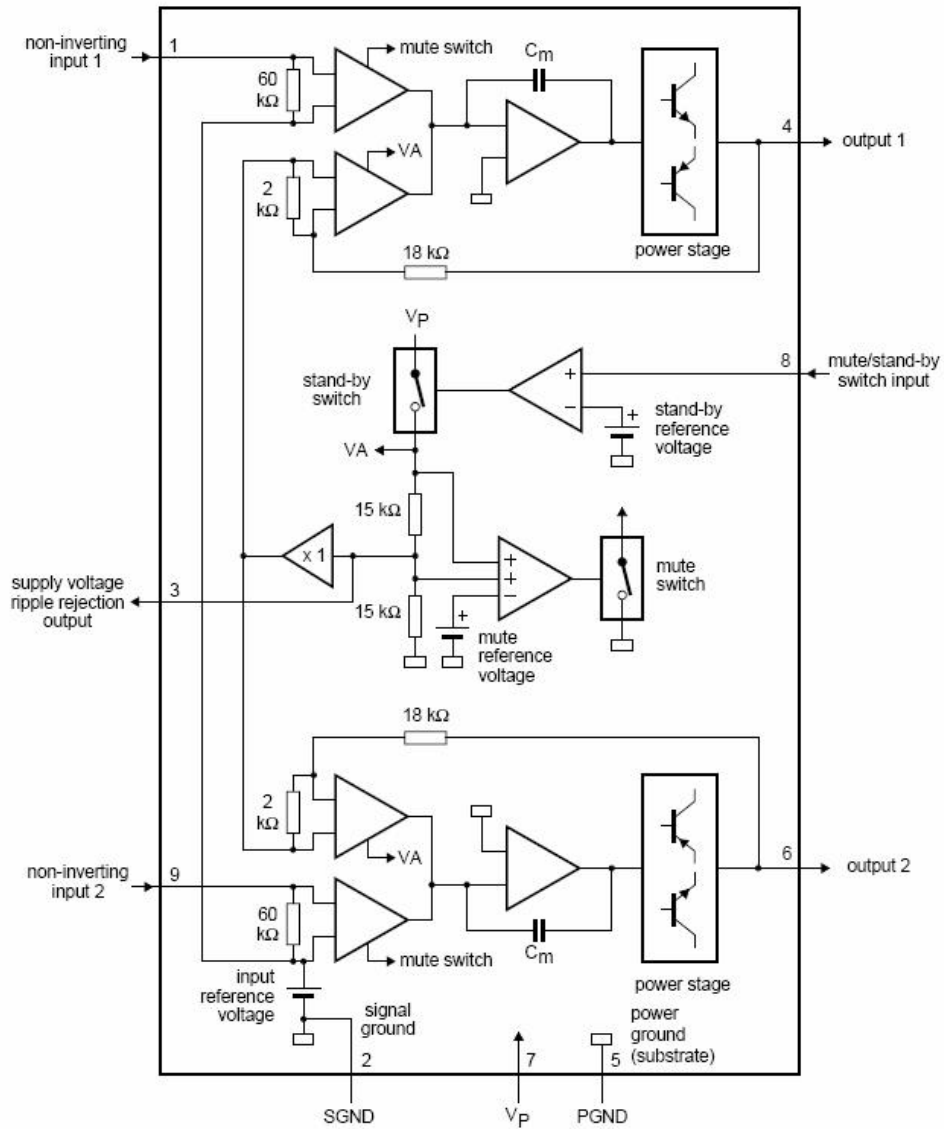
FEATURES

- * Requires very few external components
- * High output power
- * Fixed gain
- * Good ripple rejection
- * Mute/standby switch
- * AC and DC short-circuit safe to ground and VP
- * Thermally protected
- * Reverse polarity safe
- * Capability to handle high energy on outputs ($V_P = 0 V$)
- * No switch-on/switch-off pop
- * Electrostatic discharge protection.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_P	supply voltage		6.0	14.4	18.0	V
I_{ORH}	repetitive peak output current		-	-	2.5	A
$I_{q(tot)}$	total quiescent current		-	40	80	mA
I_{sb}	standby current		-	0.1	100	μA
I_{sw}	switch-on current		-	-	40	μA
$ Z_I $	input impedance		50	-	-	k Ω
P_o	output power	$R_L = 4\Omega$; THD = 0.5%	-	5	-	W
		$R_L = 4\Omega$; THD = 10%	-	6	-	W
SVRR	supply voltage ripple rejection	$f_i = 100 \text{ Hz to } 10 \text{ kHz}$	48	-	-	dB
α_{cs}	channel separation		40	-	-	dB
G_v	closed loop voltage gain		19	20	21	dB
$V_{no(rms)}$	noise output voltage (RMS value)		-	50	-	μV
T_c	crystal temperature		-	-	150	$^{\circ}C$

BLOCK DIAGRAM

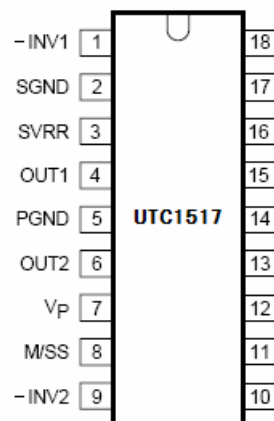
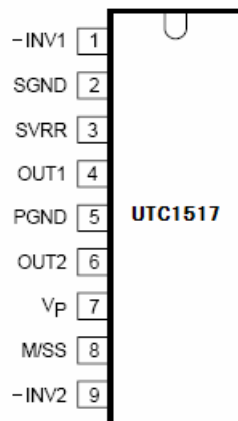


UTC1517

LINEAR INTEGRATED CIRCUIT

PINNING

SYMBOL	PIN	DESCRIPTION
-INV1	1	non-inverting input 1
SGND	2	signal ground
SVRR	3	supply voltage ripple rejection output
OUT1	4	output 1
PGND	5	power ground
OUT2	6	output 2
VP	7	supply voltage
M/SS	8	mute/standby switch input
-INV2	9	non-inverting input 2



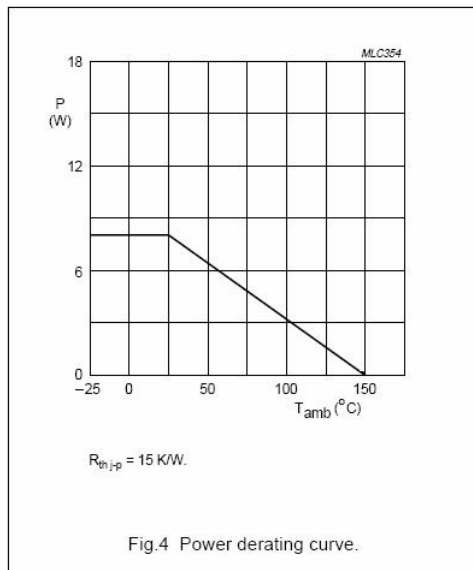
LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_p	supply voltage		-	18	V
$V_{P(SC)}$	AC and DC short-circuit safe voltage		-	18	V
$V_{P(r)}$	reverse polarity		-	6	V
ERG_0	energy handling capability at outputs	$V_p = 0V$	-	200	mJ
I_{OSM}	non-repetitive peak output current		-	4	A
I_{ORM}	repetitive peak output current		-	2.5	A
P_{tot}	total power dissipation	see Fig. 4	-	15	W
T_{stg}	storage temperature		-55	+150	° C
T_{amb}	operating ambient temperature		-40	+85	° C
T_c	crystal temperature		-	150	° C

THERMAL RESISTANCE

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ J-p}$	thermal resistance from junction to pins	15	K/W
$R_{th\ J-a}$	thermal resistance from junction to ambient	50	K/W



UTC1517

LINEAR INTEGRATED CIRCUIT

DC CHARACTERISTICS

$V_P = 14.4\text{ V}$; $T_{amb} = 25\text{ }^\circ\text{C}$; measured in Fig. 6; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Supply						
V_P	supply voltage	note 1	6.0	14.4	18.0	V
$I_{q(\text{tot})}$	total quiescent current		-	40	80	mA
V_O	DC output voltage		-	6.95	-	V
Mute/standby switch						
V_B	switch-on voltage level	see Fig. 5	8.5	-	-	V
Mute condition						
V_O	output signal in mute position	$V_{i(\text{max})} = 1\text{V}$; $f_i = 20\text{Hz to } 15\text{kHz}$	-	-	2	mV
Standby condition						
I_{sb}	DC current in standby condition		-	-	100	μA
V_{SR}	switch-on current		-	12	40	μA

Note: 1. The circuit is DC adjusted at $V_P = 6$ to 18 V and AC operating at $V_P = 8.5$ to 18 V .

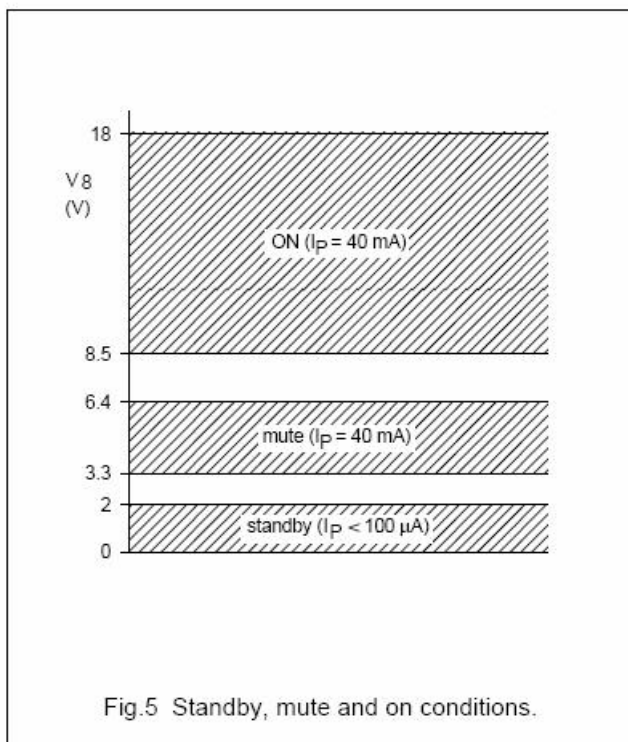
AC CHARACTERISTICS

$V_p = 14.4\text{ V}$; $R_L = 4\ \Omega$; $f = 1\text{ kHz}$; $T_{amb} = 25^\circ\text{C}$; measured in Fig.6; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
P_o	output power	THD = 0.5%; note 1	4	5	-	W
		THD = 10%; note 1	5.5	6.0	-	W
THD	total harmonic distortion	$P_o = 1\text{W}$	-	0.1	-	%
f_{lr}	low frequency roll-off	at -3 dB; note 2	-	45	-	Hz
f_{hr}	high frequency roll-off	at -1dB	20	-	-	kHz
G_v	closed loop voltage gain		19	20	21	dB
SVRR	supply voltage ripple rejection on	note 3	48	-	-	dB
	mute		48	-	-	dB
	standby		80	-	-	dB
$ Z_i $	input impedance		50	60	75	k Ω
V_{no}	noise output voltage on	$R_s = 0\Omega$; note 4	-	50	-	μV
	on	$R_s = 10\Omega$; note 4	-	70	100	μV
	mute	note 5	-	50	-	μV
α_{cs}	channel separation	$R_s = 10\ \text{W}$	40	-	-	dB
$ \Delta G_v $	channel unbalance		-	0.1	1	dB

Notes

1. Output power is measured directly at the output pins of the IC.
2. Frequency response externally fixed.
3. Ripple rejection measured at the output with a source impedance of 0Ω , maximum ripple amplitude of 2 V (p-p) and a frequency between 100 Hz and 10 kHz.
4. Noise voltage measured in a bandwidth of 20 Hz to 20 kHz.
5. Noise output voltage independent of R_s ($V_i = 0\text{ V}$).



APPLICATION INFORMATION

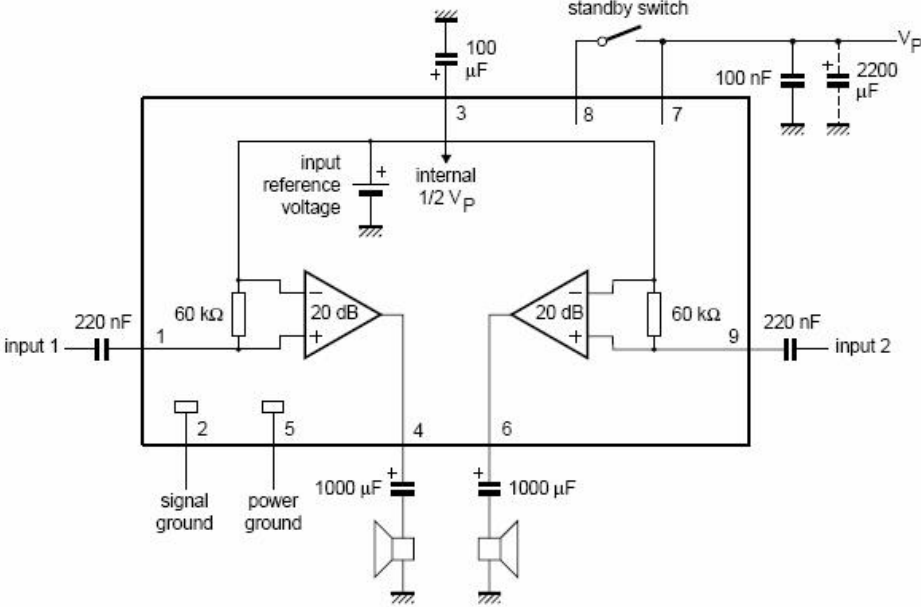


Fig.6 Application circuit diagram.

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PACKAGE OUTLINE

