

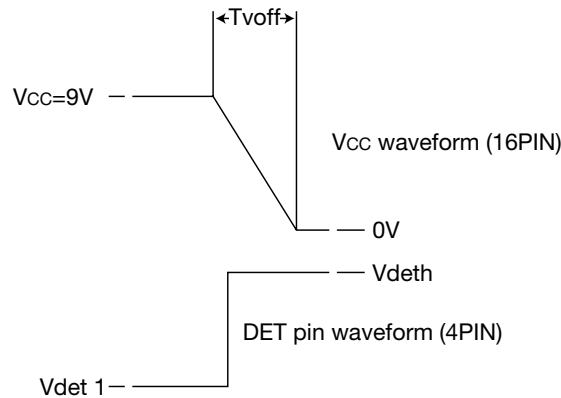
Recommended Operating Conditions

Item	Symbol	Rating	Unit
Operating temperature	T _{OPR}	-20~+75	°C
Operating voltage	V _{OP}	4.5~12.0	V
Power supply fall times *7	T _{VOFF}	0.1~1.0	S

Electrical Characteristics (Except where noted otherwise, V_{CC}=9V, Ta=25°C, V_{byp}=5V, SW1,2,3: A)

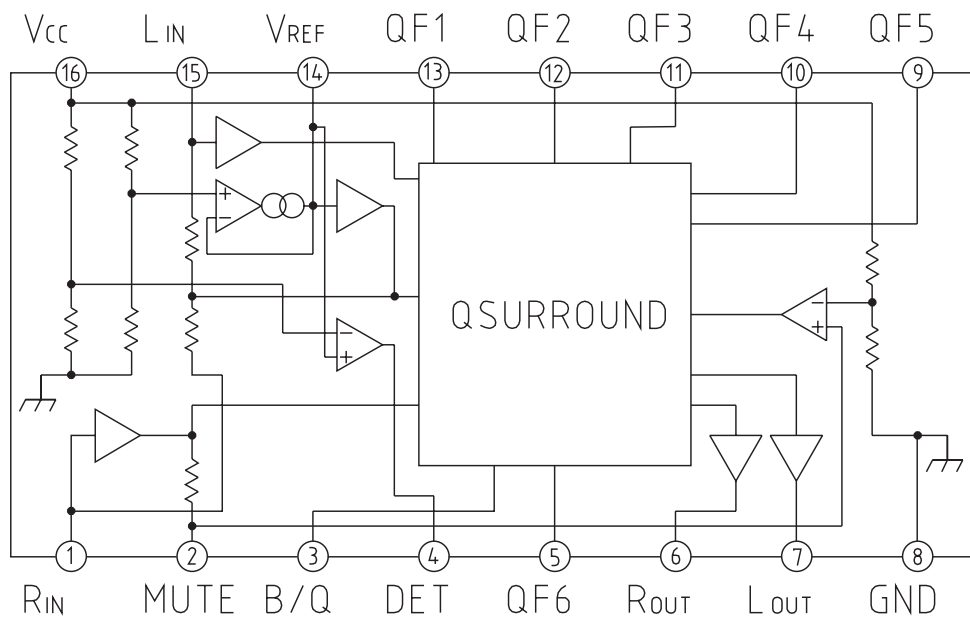
Item	Symbol	Measurement Conditions	Min.	Typ.	Max.	Unit
Current consumption	I _{CC}			16	22	mA
Voltage gain Q Surround 1	G _{qs1}	SG1 : 0.75Vrms, 1kHz SW2 : B TP1	8.5	9.5	10.5	dB
Voltage gain Q Surround 2	G _{qs2}	SG1 : 0.75Vrms, 1kHz SW2 : B TP2	4.0	5.0	6.0	dB
Voltage gain Q Surround 3	G _{qs3}	SG2 : 0.75Vrms, 1kHz SW3 : B TP2	8.5	9.5	10.5	dB
Voltage gain Q Surround 4	G _{qs4}	SG2 : 0.75Vrms, 1kHz SW3 : B TP1	4.0	5.0	6.0	dB
Voltage gain bias 1	G _{by1}	SG1 : 0.75Vrms, 1kHz V _{byp} =0V SW2 : B TP1	-1	0	1	dB
Voltage gain bias 2	G _{by2}	SG2 : 0.75Vrms, 1kHz V _{byp} =0V SW3 : B TP2	-1	0	1	dB
Input voltage amplitude (1)	V _{IN1}	V _{CC} =9V *1 SW2, 3 : B TP1, TP2	0.75	0.9		Vrms
Input voltage amplitude (2)	V _{IN2}	V _{CC} =9V *2 SW2, 3 : B TP1, TP2	0.35	0.45		Vrms
Total higher harmonic distortion Q Surround	THD _{qs}	(a) SG1 : 0.75Vrms, 1kHz SW2 : B (b) SG2 : 0.75Vrms, 1kHz SW3 : B TP1, TP2		0.1	0.3	%
Total higher harmonic distortion bias	THD _{by}	(a) SG1 : 0.75Vrms, 1kHz SW2 : B (b) SG2 : 0.75Vrms, 1kHz SW3 : B V _{byp} =0V TP1, TP2		0.03	0.15	%
Output noise voltage Q Surround	V _{noqs}	BW=20~20kHz, A Curve TP1, TP2		15	35	μVrms
Output noise voltage bias	V _{noby}	BW=20~20kHz, A Curve V _{byp} =0V TP1, TP2		10	25	μVrms
R-L channel balance	C _b	SG1, SG2 : 0.75Vrms, 1kHz V _{byp} =0V SW2, 3 : B TP1, TP2	-1.0	0	1.0	dB
B/Q pin voltage (H)	V _{byph}	*3	2.1			V
B/Q pin voltage (L)	V _{byp1}	*4			0.7	V
B/Q pin voltage (H)	I _{byph}	*5 V _{byp} =5V TP5			350	μA
B/Q pin voltage (L)	I _{byp1}	*6 V _{byp} =0V TP5	-1			μA
DET pin voltage (H)	V _{deth}	*7 TP6	8.5			V
DET pin voltage (L)	V _{deth}	*7 TP6			0.7	V
Input resistance	R _{IN}	TP3, TP4	21	30	39	kΩ
Power supply voltage removal rate Q Surround	PSRR _{qx}	SG3 : 100mVrms, 100Hz SW1 : B TP1, TP2		-80	-65	dB
Power supply voltage removal rate bias	PSRR _{by}	SG3 : 100mVrms, 100Hz SW1 : B V _{byp} =0V TP1, TP2		-85	-70	dB
Crosstalk (1)	C _{t1}	SG1 : 0.75Vrms, 1kHz SW2 : B *8 V _{byp} =0V TP1, TP2		-85	-70	dB
Crosstalk (2)	C _{t2}	SG2 : 0.75Vrms, 1kHz SW3 : B *9 V _{byp} =0V TP1, TP2		-85	-70	dB

- Note 1: *1 Input voltage amplitude when output total higher harmonic distortion is 1%. However, the signals input to SG1 and SG2 must be the same phase (phase difference 0 degrees).
- Note 2: *2 Input voltage amplitude when $f = 1\text{kHz}$ and output total higher harmonic distortion is 1%. However, the signals input to SG1 and SG2 must be reverse phase (phase difference 180 degrees).
- Note 3: *3 Voltage when B/Q pin (Pin 3) is considered to be H (Q Surround mode).
- Note 4: *4 Voltage when B/Q pin (Pin 3) is considered to be L (by pass mode).
- Note 5: *5 Current that flows in to B/Q pin (Pin 3) when $V_{byp} = 5\text{V}$.
- Note 6: *6 Current that flows out of B/Q pin (Pin 3) when $V_{byp} = 0\text{V}$.
- Note 7: *7 The mute signal for turning off the power amp power supply is output to Pin 4. On this IC, it is recommended that the pop noise generated during power supply fall be muted by turning off the power amp connected to the final stage of MM1454 before turning off the IC power supply.

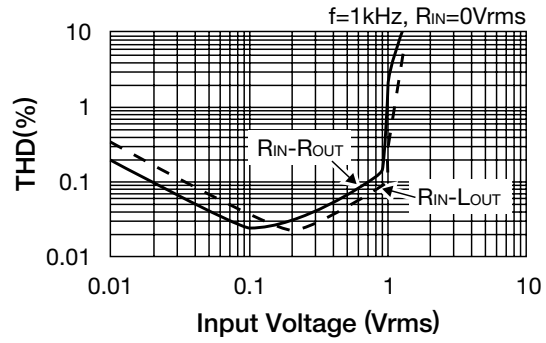
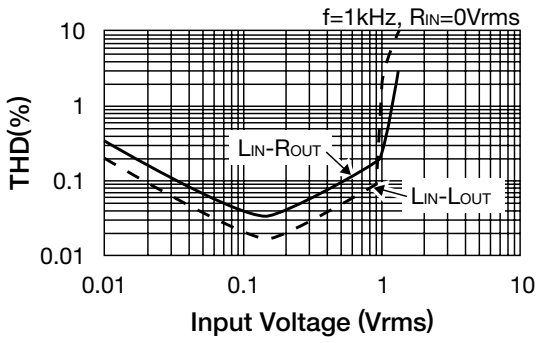


- Note 8: *8 Defined as the ratio between Pin 6 output signal and Pin 7 output signal when a signal is input to SG1.
- Note 9: *9 Defined as the ratio between Pin 7 output signal and Pin 6 output signal when a signal is input to SG2.

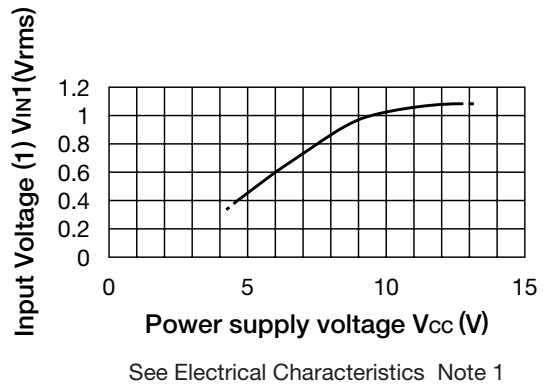
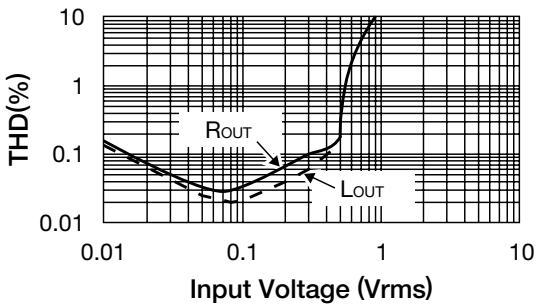
Block Diagram



3. THD of output signal – Input voltage (I_{IN}) (QSround) 4. THD of output signal – Input voltage (R_{IN}) (QSround)



5. THD of output signal – Input voltage (QSround) $f=1\text{kHz}$, The signals that are inputted in L_{IN} and R_{IN} are out of phase and same amplitude. 6. Input voltage (1) – Power supply voltage (QSround)



7. Input voltage (2) – Power supply voltage (QSround)

