

### AM TUNER FOR CAR AUDIO

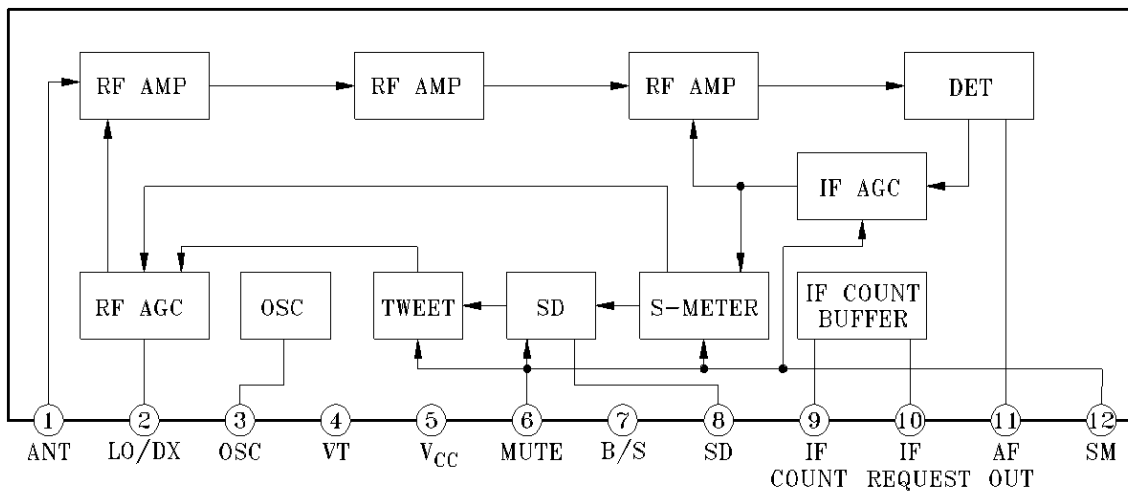
#### FEATURES

- Super Compact 3-Gang AM(MW/LW) Electronic Tuner.
- SD/SM Output Terminal and IF Counter Terminal for DTS System Application.
- Upper Side Band Super Heterodyne System.
- Receiving Frequency : MW Band=520~1720kHz, LW Band=144kHz~281kHz.
- Wide AGC.
- Recommended Operation Voltage : 7.3~9.0V.
- Band Switch Voltage : MW(MIN.)=7.0V, LW(MAX.)=0.35V.

#### MAXIMUM RATING (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Power Supply Voltage	V <sub>CC</sub>	10	V
Tuning Voltage	V <sub>T</sub>	8	V
LO/DX Voltage	V <sub>AGC</sub>	6	V
IF Control Voltage	V <sub>IF</sub>	6	V
Operating Temperature Range	T <sub>opr</sub>	-20~70	°C
Storage Temperature Range	T <sub>stg</sub>	-30~80	°C

#### BLOCK DIAGRAM



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TYPE No.

- A : \* TOKO AL TYPE FILTER
- H : \* MURATA H TYPE FILTER
- U : US BAND
- E : EUROPE BAND

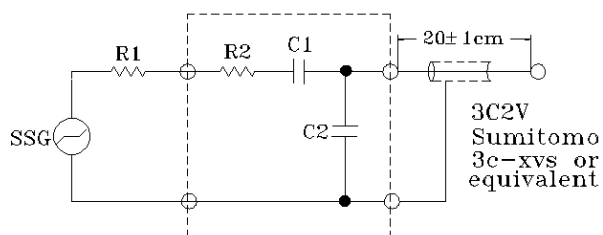
# KCA333UA/UH/EA/EH

## ELECTRICAL CHARACTERISTICS (MW BAND)

(Unless Otherwise Specified :  $V_{CC}=8.2V$ ,  $V_i=74dB\mu V$ ,  $f_i=999kHz$ ,  $Mod=30\%$ ,  $f_m=400Hz$ )

CHARACTERISTIC	TEST CONDITION	MIN.	TYP.	MAX.	UNIT (EMF)	
IF Frequency	UA/UH	448	450	452	kHz	
	EA/EH	457	459	461	kHz	
Maximum Sensitivity	Detected Output $20mV_{rms}$	-	15	25	$dB\mu V$	
Maximum Sensitivity Balance	520~1720kHz	-	6.0	10	dB	
Usable Sensitivity	S/N=20dB	-	28	33	$dB\mu V$	
S/N Ratio	at RF 999kHz	45	50	-	dB	
Image Rejection	at RF 1404kHz	50	55	-	dB	
IF Rejection	at RF 603kHz	55	-	-	dB	
2 IF Rejection	S/N at Input Level Signal $74dB\mu V$	25	30	-	dB	
Band Width	Detected Output -6dB	5.0	7.0	9.0	kHz	
Selectivity	at RF 999kHz $\pm 9kHz$	40	-	-	dB	
AGC Effect	Input $74dB\mu V$ , Reduce to AGC Level 10dB	40	50	-	dB	
Detected Output Voltage	at RF 999kHz	120	160	180	mV	
IF Output Voltage	$220k\Omega$ , 33pF Local, IF Request Terminal: 5(V)	110	150	-	mV	
OSC Output Voltage	$1k\Omega$ Load(rms)	250	290	-	mV	
SD Sensitivity (DX)	SD Voltage $1/2 V_{CC}$ , LO/DX Terminal: 0(V)	34	40	46	$dB\mu V$	
SD Sensitivity (LO)	SD Voltage $1/2 V_{CC}$ , LO/DX Terminal: 5(V)	54	60	66	$dB\mu V$	
Signal Meter Out	VSM 1	30 $dB\mu V$ Input	0.7	1.0	1.3	V
	VSM 2	130 $dB\mu V$ Input	3.5	5.0	7.5	
THD	Mod=30%	-	0.3	1.0	%	
Over Modulation THD	Mod=80%	-	0.8	2.0	%	
Strong Signal Input THD	120 $dB\mu V$ , 400Hz, 30% Mod	-	0.3	1.0	%	
Fidelity	EXT. Modulation 400Hz 30% AF Output 0 dB Point	100Hz	-3.0	0	+3.0	dB
		4kHz	-5.0	-10	-15.0	
OSC Temperature Drift	Temp. Cycle $20^{\circ}C \pm 40^{\circ}C$	-	20	30	kHz	

## DUMMY CONDITION



S.S.G : Standard  
Signal Generator

R1 : SSG Output  
Impedance

$R1+R2=80\Omega$

$C1=15pF$

$C2=65pF$

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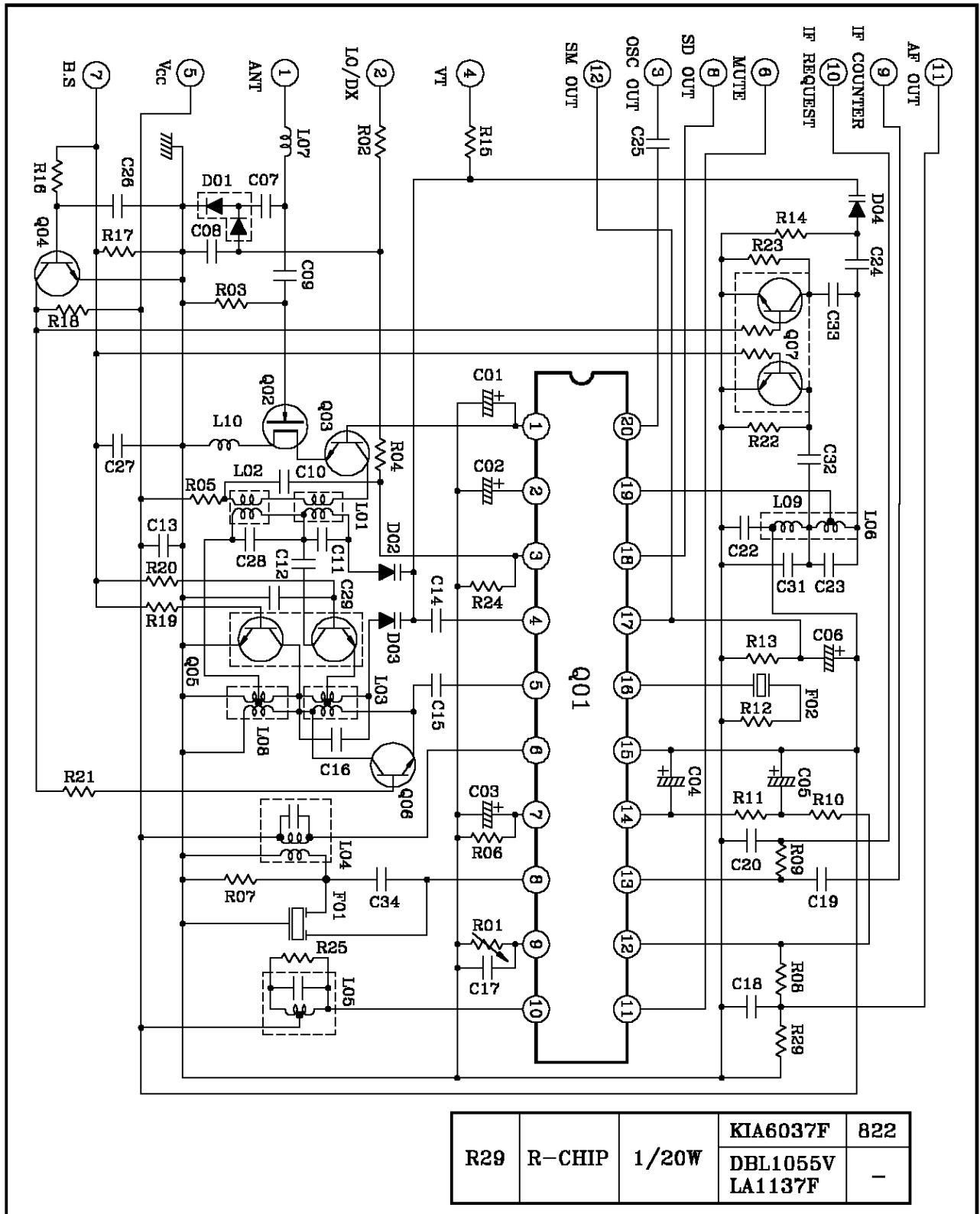
## ELECTRICAL CHARACTERISTICS (LW BAND)

(Unless Otherwise Specified :  $V_{CC}=8.2V$ ,  $V_i=74dB\mu V$ ,  $f_i=218kHz$ ,  $Mod=30\%$ ,  $f_m=400Hz$ )

CHARACTERISTIC		TEST CONDITION (164, 218, 281kHz)	MIN.	TYP.	MAX.	UNIT (EMF)	
Maximum Sensitivity		Detected Output $20mV_{rms}$	-	20	30	$dB\mu V$	
Maximum Sensitivity Balance		144~281kHz	-	6.0	10	dB	
Usable Sensitivity		S/N=20dB	-	30	35	$dB\mu V$	
S/N Ratio		at RF 218kHz	45	50	-	dB	
Image Rejection		at RF 281kHz	50	55	-	dB	
IF Rejection		at RF 164kHz	55	-	-	dB	
2 IF Rejection		S/N at Input Level Signal 74 $dB\mu V$	25	30		dB	
Band Width		Detected Output -6dB	5.0	7.0	9.0	kHz	
Selectivity		at RF 218kHz $\pm 9kHz$	UA/EA	40	-	-	dB
			UH/EH	60	-	-	dB
AGC Effect		Input 74 $dB\mu V$ , Reduce to AGC Level 10dB	40	50	-	dB	
Detected Output Voltage		at RF 218kHz	120	160	180	mV	
IF Output Voltage		220k $\Omega$ , 33pF Local, IF Request Terminal: 5(V)	110	150	-	mV	
OSC Output Voltage		1k $\Omega$ Load(rms)	250	290	-	mV	
SD Sensitivity (DX)		SD Voltage 1/2 $V_{CC}$ , LO/DX Terminal: 0[V]	39	45	51	$dB\mu V$	
SD Sensitivity (LO)		SD Voltage 1/2 $V_{CC}$ , LO/DX Terminal: 5(V)	59	65	71	$dB\mu V$	
Signal Meter Out	VSM 1	30 $dB\mu V$ Input	0.7	1.0	1.3	V	
	VSM 2	130 $dB\mu V$ Input	3.5	5.0	7.5		
THD		Mod=30%	-	0.3	1.0	%	
Over Modulation THD		Mod=80%	-	0.8	2.0	%	
Strong Signal Input THD		120 $dB\mu V$ , 400Hz, 30% Mod	-	0.3	1.0	%	
Fidelity		EXT. Modulation 400Hz 30% AF Output 0 dB Point	100Hz	-3.0	0	+3.0	dB
			4kHz	-5.0	-10	-15	
OSC Temperature Drift		Temp. Cycle 20 $^{\circ}C \pm 40^{\circ}C$	-	20	30	kHz	

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## INTERNAL CIRCUIT



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## OUTLINE DIMENSIONS (Unit:mm)

