

ELECTRONIC FM MODULE.**FEATURES**

- Super Compact 1 Pack FM F/E + AM(MW)Module.
- Ideal for Car Stereo and Car CD System.
- Upper Side Band Super Heterodyne System.
- FM Intermediate Frequency : 10.7MHz.
- ANT Input Impedance : 75Ω Unbalance.
- FM IF Output Impedance : 300Ω Unbalance.
- AM IF Counter Terminal for DTS System Application.
- Receiving Frequency : FM Band : 87.5~108MHz, MW Band : 522~1620kHz, LW Band : 144~281kHz.
- Recommended Operation Voltage : 7.5~8.5V.

MAXIMUM RATING (Ta=25℃)

CHARACTERISTIC	RATING	UNIT
Power Supply Voltage	10	V
Tuning Voltage	8.0	V
Operating Temperature Range	-20~70	℃
Storage Temperature Range	-30~80	℃

TUNING VOLTAGE (Ta=25℃)

- FM Band : 1.0~8.0V(87.5~108MHz)
- MW Band : 1.0~8.0V(522~1620kHz)
- LW Band : 1.0~7.0V(144~281kHz)

KCC713V

ELECTRICAL CHARACTERISTICS (FM)

(Unless Otherwise Specified : $V_{CC}=8.2V$, $f_i=98MHz$, $\Delta f=22.5kHz$, $V_{AGC}=5V$)

CHARACTERISTIC	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Power Gain		30	36	42	dB
Gain Balance		-	2.0	6.0	dB
Noise Figure		-	6.0	9.0	dB
Image Rejection		45	55	-	dB
IF Rejection		65	75	-	dB
1/2 IF Rejection		75	80	-	dB
2 X OSC Rejection		70	80	-	dB
AGC Reduction	5V→3V	-14	-20	-26	dB
OSC Output Voltage	1k Ω Load(rms)	200	-	-	mV
IF Band Width	-3dB	300	500	700	kHz
Current Consumption		20	30	40	mA
OSC +B Stability	STD Voltage $\pm 10\%$	-	± 200	± 250	kHz
OSC Frequency Drift Against Strong Signal Input	ANT Input Level 60dB μ V→120dB μ V	-	± 5	± 30	kHz
Spurious		Shall be Contented FCC, CE Rule			
OSC Temperature Drift	20 \pm 40 $^{\circ}$ C	MAX. ± 600			kHz
		MAX. ± 6.0			dB
OSC Stop Voltage		MIN. 4.5			V

* Standard Testing Condition

1. Temperature Condition : 20 \pm 2 $^{\circ}$ C
2. Relative Humidity Condition : 60 \pm 5%
3. Allowable Variation of Supply Voltage : $\pm 0.1V$ (Max.)
4. Allowable Variation of Tuning Voltage : $\pm 0.01V$ (Max.)

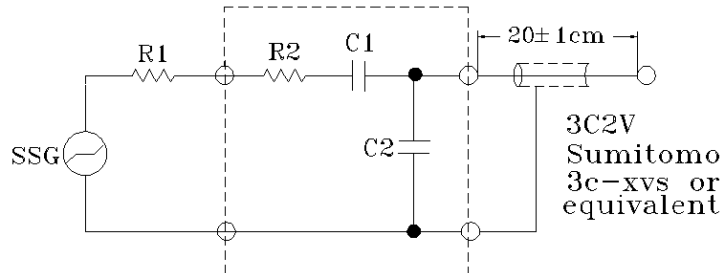
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ELECTRICAL CHARACTERISTICS (MW BAND)

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

CHARACTERISTIC		TEST CONDITION (603, 999, 1404kHz)	MIN.	TYP.	MAX.	UNIT (EMF)
Maximum Sensitivity		Detected Output $20mV_{rms}$	-	15	25	$dB\mu V$
Maximum Sensitivity Balance		522~1620kHz	-	6.0	10	dB
Usable Sensitivity		S/N=20dB	-	28	32	$dB\mu V$
S/N Ratio			45	50	-	dB
Image Rejection		at RF 1404kHz	45	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 $\pm 9kHz$	45	-	-	dB
AGC Effect		Input $74dB\mu V$, Reduce to AGC Level 10dB	40	50	-	dB
Detected Output Voltage			120	160	180	mV
IF Output Voltage		220k Ω , 33pF Local, IF Request Terminal: 5(V)	110	150	-	mV
OSC Output Voltage		1k Ω Load(rms)	250	290	-	mV
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

DUMMY CONDITION



S.S.G : Standard
Signal Generator

R1 : SSG Output
Impedance

$R1+R2=80\Omega$

$C1=15pF$

$C2=65pF$

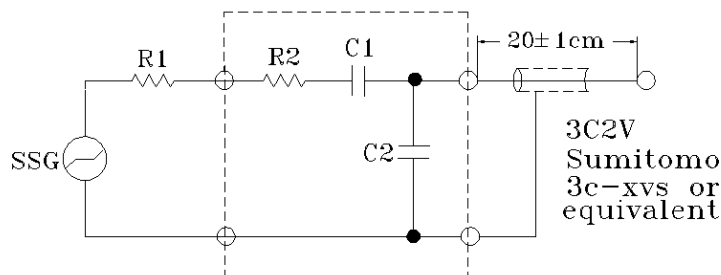
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ELECTRICAL CHARACTERISTICS (LW BAND)

(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 $20mV_{rms}$	-	22	30	$dB\mu V$
Maximum Sensitivity Balance		144~281kHz	-	5.0	10	dB
Usable Sensitivity		S/N=20dB	-	28	35	$dB\mu V$
S/N Ratio			40	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 $74dB\mu V$	25	30	-	dB
Band Width		Detected Output -6dB	4.0	6.0	9.0	kHz
Selectivity		at RF 218kHz $\pm 9kHz$	40	-	-	dB
AGC Effect		Input $74dB\mu V$, Reduce to AGC Level 10dB	40	45	-	dB
AF Output Voltage			120	150	180	mV
OSC Output Voltage		$1k\Omega$ Load(rms)	250	320	-	mV
Signal Meter Out	VSM 1	$35dB\mu V$ Input	0.7	1.0	1.3	V
	VSM 2	$130dB\mu V$ Input	3.5	5.0	7.5	
LO/DX Reduction		LO/DX Terminal 5(V)	15	20	25	dB
THD		Mod=30%	-	0.3	1.0	%
Over Modulation THD		Mod=80%	-	0.8	2.0	%
Strong Signal Input THD		$120dB\mu V$, 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	-10	-15	-20	
OSC Vcc Drift		at $8.2(V) \pm 10\%$	-	± 1.0	± 5.0	kHz
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

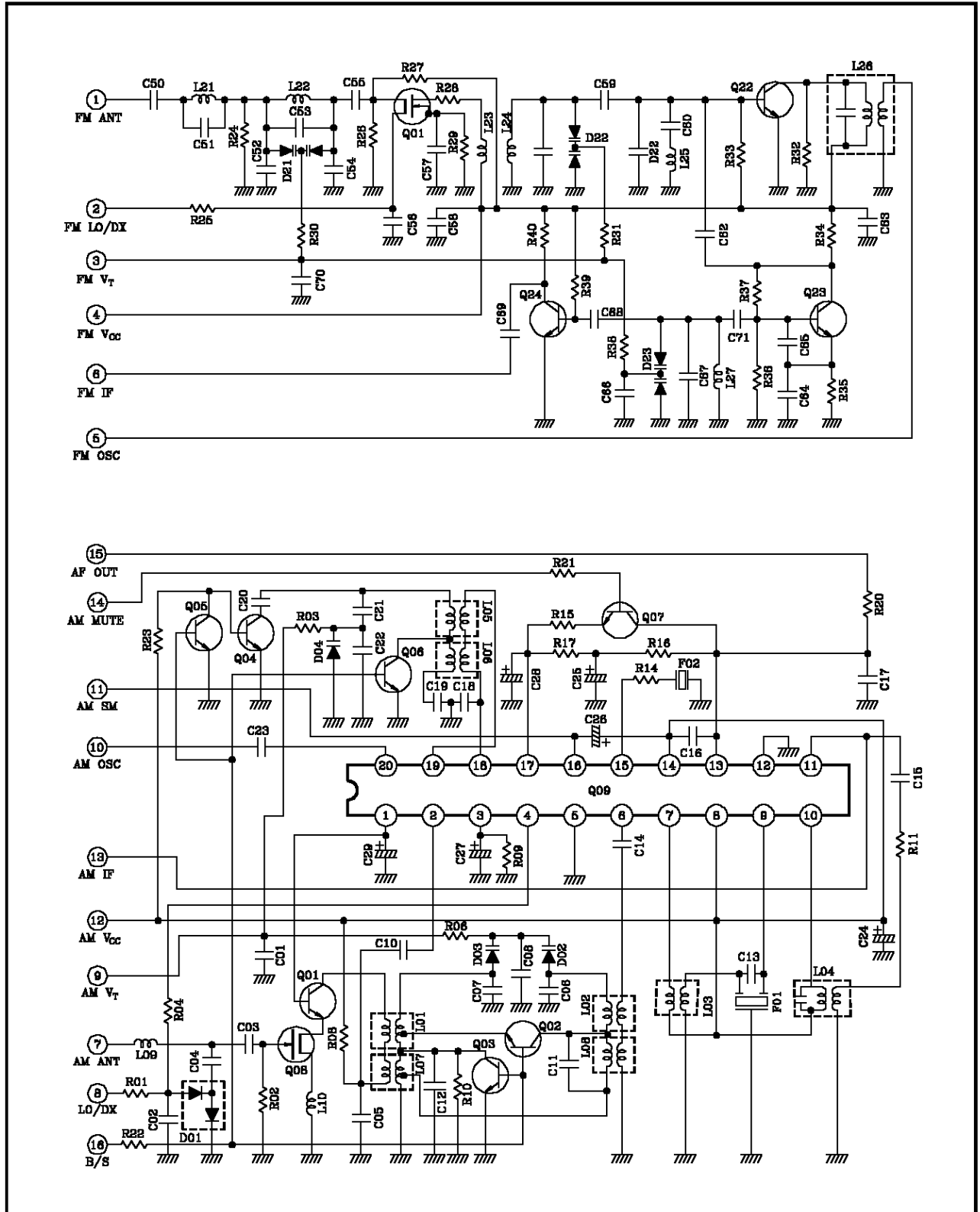
$R1+R2=80\Omega$

$C1 = 15pF$

$C2 = 65pF$

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INTERNAL CIRCUIT



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OUTLINE DIMENSIONS (Unit:mm)

