Frequency Divider 1:64

SDA 2101

Bipolar IC
MOS Handling

Type	Ordering code	Package
SDA 2101	Q67000-A1753	P-DIP 8

The IC has been designed for application in TV receivers using frequency selection according to the frequency synthesis concept. It includes a preamplifier and an ECL divider with a dividing ratio of 1:64.

The frequency range extends up to 1 GHz.

- Few external components

Maximum Ratings

Supply voltage	V_8	6	V
Input voltage (UHF/VHF & reference) (peak-to-peak)	V_i	2.5	V
Divider outputs	$V_{q\,6}$, $V_{q\,7}$	0 to V_S	V
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	−40 to 125	°C
Thermal resistance			
System-air	$R_{th\,SA}$	115	K/W
System-case	$R_{th\,SC}$	60	K/W

Operating Range

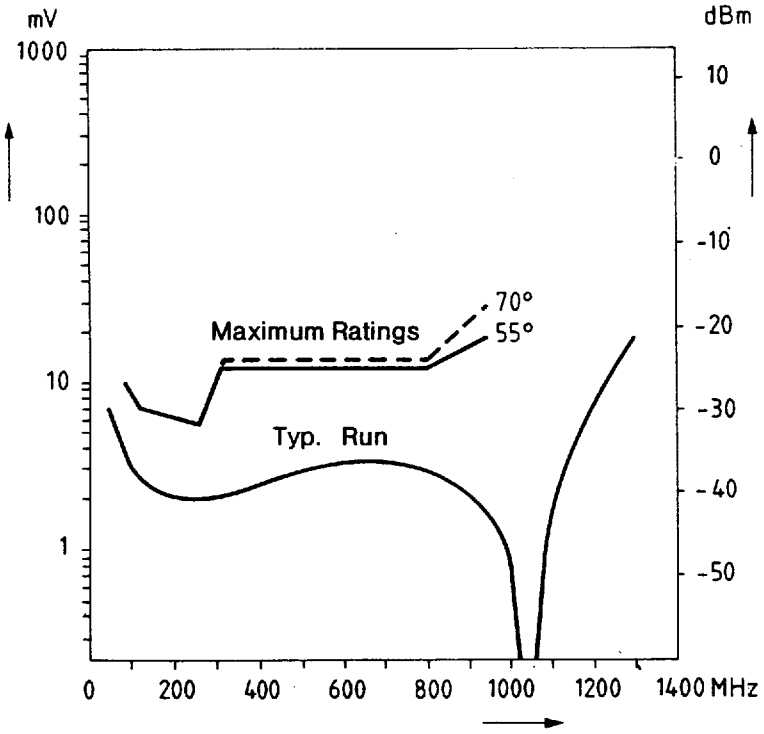
Supply voltage	V_8	4.7 to 5.5	V
Input frequency $T_A = 0$ to 70 °C	$f_{i\,1}$	80 to 1000	MHz
Ambient temperature range (80 MHz to 950 MHz)	T_A	0 to 85	°C

Characteristics

$V_S = 5$ V; $T_A = 25$ °C

		min	typ	max	Unit
Input level ("input sensitivity")	V_2				
$V_S = 4.7$ to 5.5 V; $T_A = 0$ to 70 °C					
80 MHz		−27		3	dBm
120 MHz		−30		3	dBm
250 MHz		−32		3	dBm
300 MHz		−24		3	dBm
800 MHz		−24		3	dBm
950 MHz		−15		3	dBm
$V_S = 4.7$ to 5.5 V; $T_A = 0$ to 55 °C					
800 MHz		−25			dBm
950 MHz		−21			dBm
$V_S = 4.7$ to 5.5 V; $T_A = 0$ to 25 °C					
800 MHz		−27			dBm
950 MHz		−27			dBm
Current consumption	I_8		50	70	mA
Output voltage swing (peak-to-peak)	V_6, V_7	0.5	1.0	1.2	V
Output voltage "high"	V_6, V_7		V_S		V

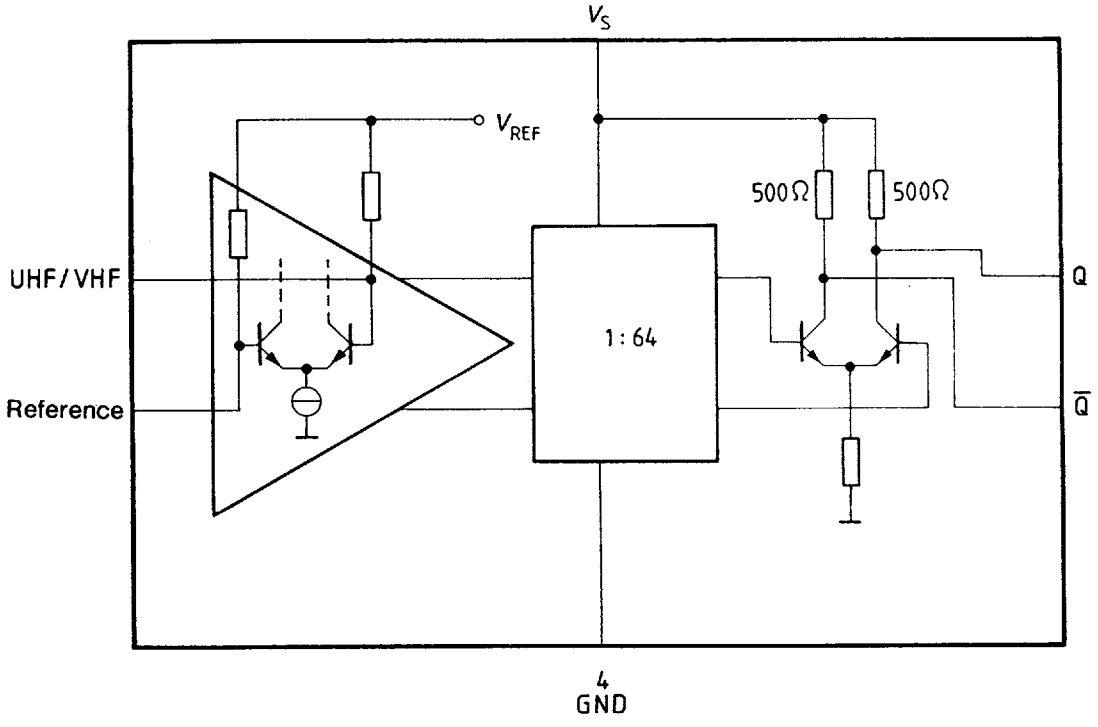
Typical Input Sensitivity of the Divider



Circuit Description

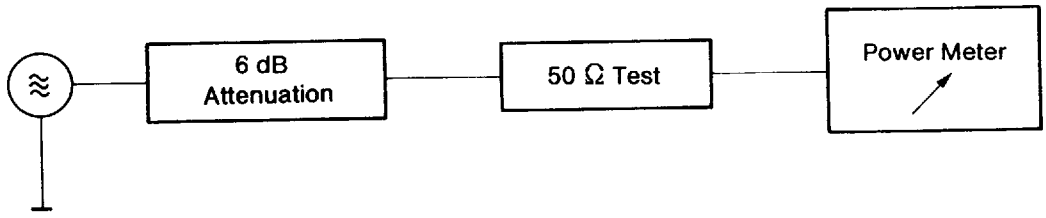
The amplifier of the IC features a VHF/UHF input and a reference input. The reference input should be disabled by a capacitor with low series inductance. The divider of the component consists of several, status-controlled master-slave flipflops with a dividing ratio of 1:64.
The divider output supplies a symmetrical ECL push-pull signal.

Block Diagram



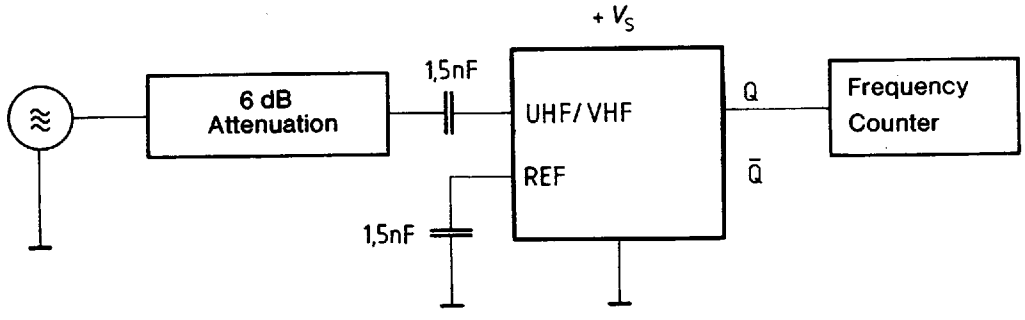
Test and Measurement Circuit

Signal Generator
$Z_o = 50\ \Omega$



Test Circuit 1: Calibration of Signal Generator

Signal Generator
$Z_o = 50\ \Omega$



Test Circuit 2: Measurement of Input Sensitivity

Pin Definitions

Pin	Function
1	N.C.
2	UHF/VHF signal input
3	Reference input
4	GND
5	N.C.
6	Divider output $\bar{Q}$
7	Divider output Q
8	Supply voltage $+V_S$