TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 4/13

DAS10241

1.0 TO 10.0 GHz HIGH-SPEED ANALOG DETECTOR

Typical Values @ +25 °C	DAS10241
Wide Frequency Range	**1.0 to 10.0 GHz**
Wide Power Range	**-40.0 to 0 dBm**
High Sensitivity	**5 mV/uW**
Good Temperature Stability	**± 0.5 dB**
Fast Pulse Response	**5 ηs**

Versatile analog detector usable for both wideband video detection (to –35 dBm) and low level detection to –55 dBm (with offset correction and video filtering or averaging) Design limits drive to the video amp providing fast recovery from high level pulses.

SPECIFICATIONS*

Parameter	Typical	Guaranteed* 0 to 50 °C	Guaranteed* -55 to +85°C
Frequency (Min.)	**1.0-12.0 GHz**	**1.0-10.0 GHz**	**1.0-10.0 GHz**
Input Power Range (Min.)	-40 to 0 dBm	-35 to -5 dBm	-35 to -5 dBm
VSWR (Max.)	1.5:1	2.0:1	2.0:1
Sensitivity, Vout (Min.) Pin = –15 dBm	160 mV	100 mV	100 mV
Power Flatness (Max.) 1-10 GHz 2-10 GHz	±1.0 dB ±0.5 dB	±1.5 dB ±1.0 dB	±1.5 dB ±1.0 dB
Temperature Stability (Max.)	—	±0.5 dB	±1.0 dB
Output Offset Voltage, no RF (Max.)	±0.2 mV	±0.5 mV	±1.0 mV
Output Noise Voltage (Max.) Video Load = 50 ohms	140 uVrms	160 uVrms	160 uVrms
Response Time Pin = –15 dBm Video Load = 50 ohms	5 ηsec†	7 ηsec†	7 ηsec†
Response Time Pin = +5 dBm Video Load = 50 ohms	9 ηsec†	12 ηsec†	12 ηsec†
Recovery Time to –30 dBm Pin = +5 dBm, Video Load = 50 ohms	40 ηsec	50 ηsec	50 ηsec
Video Output Impedance	50 ohms	—	—
Supply Current, +V/–V, no RF (Max.)	12/12 mA	15/15 mA	15/15 mA
Supply Current,+V/–V (Max.) Pin = +5 dBm , Video Load = 50 ohms	30/12 mA	35/15 mA	35/15 mA

* 50 ohm RF, 10K ohm Video and ±5.0 Vdc unless otherwise specified.
† Total response time, 50% RF to 90 or 10% Video Pulse.

MAXIMUM RATINGS

DC Voltage	±6.0 V
Continuous RF Input Power	+14.0 dBm
Operating Case Temperature	-55 °C to +95 °C
Storage Temperature	-65 °C to +125 °C
Burn-In Temperature	+125 °C
Detector Thermal Resistance[1] (θjc)	+3500 °C/Watt
Temperature Rise @ 0 dBm (Tjc)	+3.5 °C
Temperature Rise @ +5 dBm (Tjc)	+35 °C

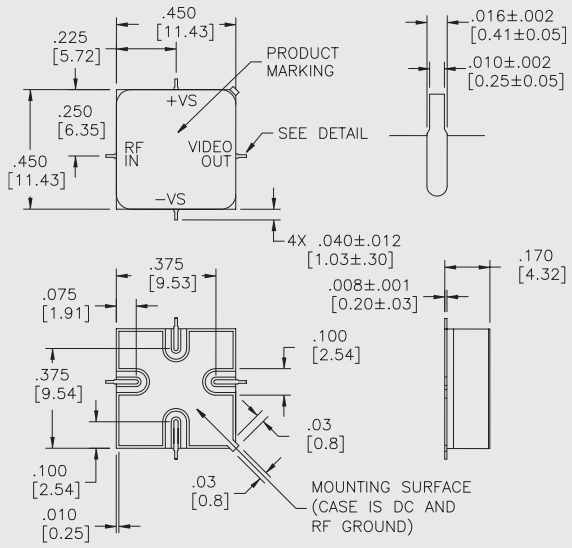
[1] Thermal resistance is based on RF input power. Ratings based on +25 °C.

APPLICATION NOTES

- Average power detection is obtained at power levels below approximately –13 dBm.
- For best pulse recovery DC supply pins should be bypassed with 1-10 uF depending on pulse width, duty cycle and video load.
- Simple output offset voltage trimming (over temperature) can be implemented by "pulling" the output (Rout=50 ohms) through a 100 K resistor and DAC/PROM supply.

DAS10241

SMTO-8 for Detectors



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE