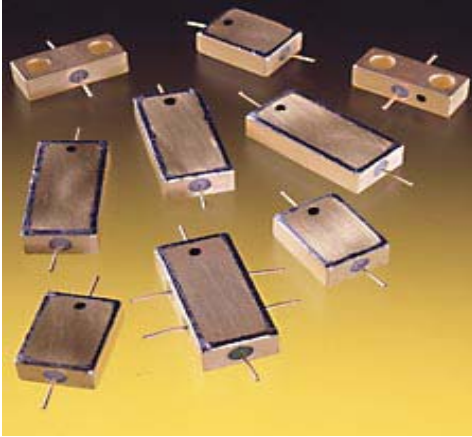


# Drop-in Module Series

## Schottky Detectors, Limiter Detectors, Limiters



- Excellent Electrical Performance
- Superior Performance
- Excellent Frequency Flatness
- Temperature Stability
- Adaptable to Custom Requirements

Detectors

**DESCRIPTION** The Microphase Drop-in Module Detector Series are used for integrated assemblies, where small sized connectorless modules may be used in microstrip and stripline applications. Various designs are available including: biased schottky, zero biased schottky or tunnel detectors. Limiter Detector combinations for improved performance are also available, as well as limiters for receiver protection.

**ADVANTAGES** The main advantage of the Microphase designed and engineered Drop-in Module Detector Series is its small size and superior electrical performance. Other important advantages are its high sensitivity level and wide dynamic range, as well as excellent frequency flatness. You get excellent electrical performance, environmental stability and mechanical reliability. These hermetically sealed units can be custom specified for many different configurations. Compact and very rugged, all of our products are 100% tested, and readily available.

Model Number	Frequency (GHz)	TSS (dBm)	Flatness (dB)	Nominal Volt.Sens. (mV/mW)	Max Power @ 25°C CW	Max Power @ 25°C Pulse
BSM 328	2-8	-52	±0.5	2600		
FSM 328	2-8	-52	±0.5	2600		
BSM 3218	2-18	-50	±1.0	2300		+27dBm
FSM 3218	2-18	-50	±1.0	2300	+20 dBm	1 µsec
BSM 2540	0.5-4	-52	±0.5	2600		1000 pps
FSM 2540	0.5-4	-52	±0.5	2600		
BSM 3818	8-18	-51	±0.8	2400		
FSM 3818	8-18	-51	±0.8	2400		
BDL 3218	2-18	-48	±1.5	1800		
FDL 3218	2-18	-48	±1.5	1800		+50 dBm
BDL 3212	2-12	-49	±1.0	2000	+30 dBm	1 µsec
FDL 3212	2-12	-49	±1.0	2000		1000 pps
BDL 3818	8-18	-48	±1.25	1800		
FDL 3818	8-18	-48	±1.25	1800		

Model Number	Freq (GHz)	Ins. Loss(dB) @ -10 dBm		VSWR @ -10 dBm		Limiting Threshold	Leakage @ +30 dBm	Leakage @ +30 dBm max.	max. Power @ 25°C CW	max. Power @ 25°C Pulse	max. Recovery Time
		typ.	max.	typ.	max.	typ.	mW max.				
FLH 3112	1-12	0.6	1.2	1.5	2.0	+8 dBm	80	+ 19	+30 dBm	+53 dBm	
										1 µsec	20 nsec
FLH 3818	8-18	1.8	2.5	2.0	3.0	+8 dBm	40	+ 16		1000 pps	



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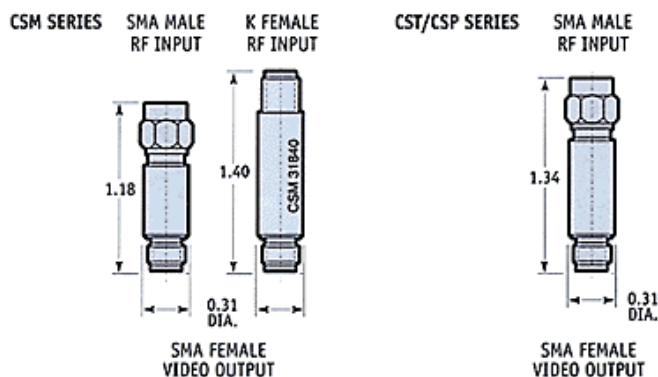
# CSM, CST and CSP Series Schottky Detectors

0.5 to 40.0 GHz



## OPERATING CONDITIONS

	CSM & CSP	CST
Bias	150 $\mu$ Amp	100 $\mu$ Amp
Video Impedance	350 Ohms	650 Ohms
Power Handling	+20 dBm CW	+20 dBm CW
	+26 dBm pulse:	1 $\mu$ sec., 1000 pps
Operating Temperature	-54°C to +125°C	-54°C to +125°C
Storage Temperature	-54°C to +150°C	-54°C to +150°C
Shock	30G, 11 msec.	30G, 11 msec.
Vibration	20G, 10-2000 Hz	20G, 10-2000 Hz



## Wireless

Excellent Electrical Performance

Excellent Frequency Flatness

Superior Performance

Wide Dynamic Range

Excellent Temperature Stability

**DESCRIPTION** The CSM, CST, & CSP Series Schottky Detectors provide a comprehensive line of detectors covering most applications. These three AC coupled biased Schottky Detector designs may be optimized for frequency range, voltage sensitivity, flatness, or VSWR parameters. The CSM Series provides a very broadband, high voltage sensitivity, and good flatness response, with a low video impedance of 350 Ohms at 150 microamps of bias. The CST series provides very high voltage sensitivity, good VSWR at both low and high input power levels and excellent flatness response. The video impedance is 650 Ohms, typically, at 100 microamps of bias. The CSP series offers low VSWR response at both low and high input power levels over broadband, exceptional flatness response, but with the performance trade off of lower voltage sensitivities when compared to the CSM and CST. The video impedance is 350 Ohms, typically at 150 microamps of bias.

**ADVANTAGES** The advantage of a Microphase designed and engineered CSM, CST & CSP Series Schottky Detectors may be optimized for a particular performance parameters such as bandwidth, sensitivity or VSWR. Compact and very rugged these detectors utilize sealed glass module construction and provide excellent frequency flatness. This series provides VSWR, high sensitivity, excellent electrical performance, environmental stability and mechanical reliability. All of our products are 100% tested, fully productized and readily available.

Limiter Detectors



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# Limiter Detectors

## CSM Series - High Sensitivity Wideband

Model <sup>1</sup> Number	Freq Range (GHz)	Flatness @-20 dBm (dB)	VOLT SENS OPEN CKT. (mV/mW)	VSWR @-20 dBm	Output Capacitance (pF)
CSM 2550	0.5-5	±0.5	2000 min.	6.0:1 max.	30 max.
CSM 3112	1-12	±0.5	2000 min.	5.0:1 typ.	15 max.
CSM 3218	2-18	±1.0	1800 min.	4.0:1 max.	15 max.
CSM 3818	8-18	±0.5	1800 min.	3.0:1 typ.	15 max.
CSM 31840	18-40	±2.0	900 min. 1600 typ.	4.0:1 max. 3.0:1 typ.	15 max.

## CST Series - Very High Sensitivity-Tuned, Low VSWR

Model <sup>1</sup> Number	Freq Range (GHz)	Flatness @-20 dBm (dB)	VOLT SENS OPEN CKT. (mV/mW)	VSWR @-20 dBm	VSWR @+5 dBm	Output Capacitance (pF)
CST 2520	0.5-2	±0.3 max. ±0.2 typ.	2500 min. 2600 typ.	2.5:1 max. 2.0:1 typ.	4.0:1 max. 3.5:1 typ.	50 max.
CST 326	2-6	±0.3 max. ±0.2 typ.	2600 min. 2700 typ.	2.5:1 max. 2.0:1 typ.	4.0:1 max. 3.5:1 typ.	15 max.
CST 3610	6-10	±0.3 max. ±0.2 typ.	2600 min. 2700 typ.	2.5:1 max. 2.0:1 typ.	4.0:1 max. 3.5:1 typ.	15 max.
CST 31014	10-14	±0.4 max. ±0.3 typ.	2700 typ. 2700 typ.	2.5:1 max. 2.0:1 typ.	4.0:1 max. 3.5:1 typ.	15 max.
CST 31418	14-18	±0.4 max. ±0.3 typ.	2900 min. 3000 typ.	2.5:1 max. 2.0:1 typ.	4.0:1 max. 3.5:1 typ.	15 max.

## CSP Series - Low VSWR-Wideband

Model <sup>1</sup> Number	Freq Range (GHz)	Flatness @-20 dBm (dB)	VOLT SENS OPEN CKT. (mV/mW)	VSWR @-20 dBm	VSWR @+5 dBm	Output Capacitance (pF)
CSP 2580	0.5-8	±0.5	1000 min. 1200 typ.	2.5:1 max. 2.0:1 typ.	3.0:1 max. 2.5:1 typ.	30 max.
CSP 3218	2-18	±0.5	900 min. 1000 typ.	2.5:1 max. 2.0:1 typ.	3.0:1 max. 2.5:1 typ.	15 max.
CSP 3218	8-18	±0.5	900 min. 1000 typ.	2.5:1 max. 2.0:1 typ.	3.0:1 max. 2.5:1 typ.	15 max.

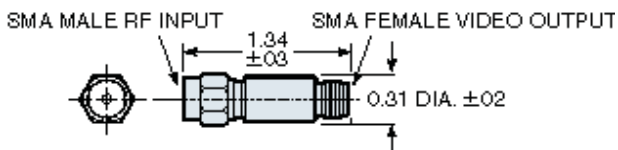
### NOTES

1 Model numbers are for negative polarity.  
For POSITIVE polarity, add suffix-P to the model number.  
Other connector types and/or solder-pin combinations are available.

*These units can be designed to your specification. Please contact Microphase for your special design requirements.*

# CDL Series Limiter Detectors

- Excellent Electrical Performance
- Superior Performance
- High Sensitivity
- High Power Protection



## SPECIFICATIONS

Model No	CDL 3212A	CDL 3818A
Frequency Range	2.0-12.0 GHz	8.0-18.0 GHz
Tangential Sensitivity	-52 dBm, nom. (2 MHz video BW; 2 dB video NF)	-50 dBm, nom. (2 MHz video BW; 2 dB video NF)
Voltage Sensitivity	1800 mV/mW, nom.	1700 mV/mW, nom.
Video (output) Capacitance	10 pF	10 pF
max. RF Power: CW	+30dBm (1 Watt) +50 dBm (100 Watt),	+30dBm (1 Watt) +50 dBm (100 Watt),
Pulse	1 µsec, 1,000 pps	1 µsec, 1,000 pps
Flatness	2 dB, nom.	2 dB, nom.
Bias	100 µAmp	100 µAmp

**DESCRIPTION** The Microphase CDL Series Limiter Detectors are very broadband, biased, high sensitivity detectors with integral limiters, providing +23 to +25 dBm extra burnout margin for use in receivers. These units have built-in RF Limiters which prevent high power CW and RF pulse damage to the RF detector circuit, normally operated with 100 microamps of bias.

**ADVANTAGES** The advantages of the Microphase designed and engineered CDL Series Limiter Detectors feature all-silicon semiconductor circuits housed in hermetically sealed modules. Standard models are supplied with integral DC returns and male SMA input, female SMA output connectors. Custom modifications include: wider or narrower RF bandwidths, tracked pairs or sets, higher power handling and special connector configurations. You get excellent electrical performance, environmental stability and mechanical reliability. These units can be adapted for custom configurations. Compact and very rugged, all of our products are 100% tested and readily available.

Limiter Detectors



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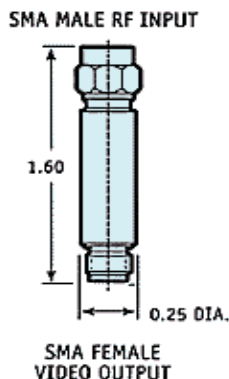
# CTM Series Tunnel Diode Back Detectors

## 0.5 to 18.0 GHz



**DESCRIPTION** The CTM Series Tunnel Diode Back Detector rectifies transmitted data and requires no bias. The octave and multi-octave bandwidth models with field proven reliability, offer design engineers convenient options for their system needs. Back detectors, which operate without bias, are useful in CW and DC coupled applications, and combine high-speed detection with excellent temperature stability. Compact, rugged coaxial units are available, often from stock.

**ADVANTAGES** The advantage of a Microphase-designed and engineered CTM Series Tunnel Diode Back Detectors provide excellent frequency flatness and VSWR, high sensitivity, excellent electrical performance, environmental stability and mechanical reliability. All of our products are 100% tested, fully productized and readily available.



**Secure Wireless**

**Excellent Electrical Performance**

**Superior Performance**

**High Sensitivity Level**

**Low Video Impedance**

**Excellent Temperature Stability**

Model Number	Freq. (GHz)	Flatness @-23 dBm (dB)	VOLT SENS @-23 dBm (mV/mW)	VSWR @-23 dBm typ./max.	TSS* dBm
CTM 2510	0.5-1	±0.3	1000	1.6:1/2.0:1	-52
CTM 312	1-2	±0.3	1000	1.6:1/2.0:1	-52
CTM 324	2-4	±0.3	1000	1.7:1/2.0:1	-52
CTM 348	4-8	±0.4	900	1.8:1/2.0:1	-51
CTM 3812	8-12	±0.5	900	1.8:1/2.0:1	-51
CTM 31218	12-18	±0.7	800	2.0:1/2.2:1	-50
CTM 2520	0.5-2	±0.3	950	2.0:1/2.4:1	-51
CTM 2540	0.5-4	±0.3	900	2.0:1/2.8:1	-51
CTM 3818	8-18	±0.7	800	2.0:1/2.8:1	-50
CTM 3112	1-12	±1.0	800	2.5:1/3.5:1	-50
CTM 3218	2-18	±1.0	600	3.0:1/4.0:1	-49
CTM 25180	0.5-18	±1.5	500	3.0:1/4.0:1	-49
CTM 328	2-8	±0.5	700	2.0:1/2.6:1	-50

\*Video NF 3dB; BW 2 MHz

### OPERATING CONDITIONS

Power Handling +17 dBm CW; 3 ergs spike

Video Impedance 100 Ohms (nom.)

Operating Temperature -54°C to +85°C

Storage Temperature -54°C to +125°C

Shock 30 G, 11 msec.

Vibration 20 G, 10-2000 Hz

### NOTES

1. Model numbers are for negative polarity. For POSITIVE polarity, add suffix-P to the model number.
2. Other connector types and/or solder-pin combinations are available.



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Limiter Detectors

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# LH/LQ Series RF Limiters

## 1.0 to 18.0 GHz



**DESCRIPTION** The Microphase LH/LQ Series RF Limiters are passive limiters, which provide high power protection for RF receivers and other microwave circuits. The LH type operates at higher peak powers with faster recovery characteristics; the LQ type provides higher isolation (lower leakage) but operates at lower maximum peak powers and has longer recovery time.

**ADVANTAGES** The Microphase-designed and engineered LH/LQ Series are available in two convenient designs, which offer wide-band performance and high reliability in compact coaxial packages. Receive excellent electrical performance, environmental stability and mechanical reliability. These units can be adapted for custom configurations. Compact and very rugged, all products are 100% reliability screened, and readily available.

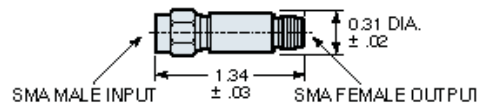
**Excellent Electrical Performance**

**Superior Performance**

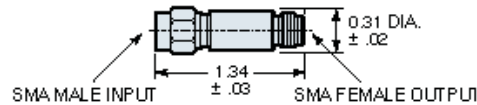
**Low Insertion Loss**

**Low VSWR**

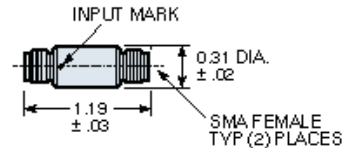
**LH 3118 H**



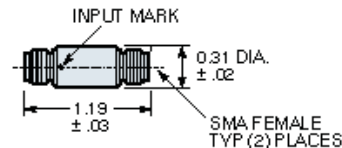
**LQ 3118A-H**



**LH 3118 J**



**LQ 3118A-J**



Model Number	Freq (GHz)	Ins. Loss(dB)		VSWR		Limiting Threshold typ.	@+30 dBm		max. CW Pwr. @ 25C°	max. Pulse Power 1 µsec 1,000PPS @ 25C°	Recovery Time
		@ -10 dBm typ.	max.	@ -10 dBm typ.	max.		mW max.	dBm max.			
LH 3118	1.0 - 10.0	0.6	1.2	1.3	1.5						
	10.0 - 14.0	1.4	2.2	1.3	1.6	+8 dBm	80	+19	+30 dBm	+53 dBm	<20 nsec
	14.0 - 18.0	2.2	3.0	1.5	2.0						
LQ 3118A	1.0 - 10.0	0.5	1.2	1.3	1.5						
	12.0 - 16.0	1.0	2.0	1.3	1.6	+5 dBm	30	+15	+40 dBm	+50 dBm	<300 nsec
	16.0 - 18.0	2.0	4.0	1.5	2.5						



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Limiter Detectors

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