

Microwave applications



## SILICON LIMITER PIN DIODES

### Description

These passivated mesa PIN diodes have a thin I layer. This series of diodes is available as chips and in hermetic ceramic packages. They operate as power dependent variable resistances and provide passive receiver protection (low noise amplifiers, mixers, and detectors).

### Electrical characteristics

CHIP DIODES			PACKAGED DIODES						
Characteristics at 25°C		GOLD DIA Ø	Breakdown voltage $V_{BR}$		Junction capacitance $C_{j0}$	Junction capacitance $C_{j-6}$ (1)		Series resistance $R_{SF}$	Minority carrier lifetime $\tau_i$
Test conditions			$I_R = 10 \mu A$		$V_R = 0 V$ $f = 1 MHz$	$V_R = 6 V$ $f = 1 MHz$		$I_F = 10 mA$ $f = 120 MHz$	$I_F = 10 mA$ $I_R = 6 mA$
Type	Case	$\mu m$	V		pF	pF		$\Omega$	ns
		typ.	min.	max	typ.	min.	max	max	typ.
EH60033	C2a	25	25	50	0.14	0.08	0.12	1.8	20
EH60034	C2a	30	25	50	0.20	0.12	0.17	1.5	20
EH60035	C2a	35	25	50	0.28	0.17	0.23	1.0	25
EH60036	C2a	55	25	50	0.45	0.23	0.40	0.9	30
EH60037	C2a	65	25	50	0.70	0.40	0.60	0.7	40
EH60052	C2a	30	50	70	0.10	0.06	0.08	1.8	30
EH60053	C2a	35	50	70	0.14	0.08	0.12	1.4	30
EH60054	C2a	40	50	70	0.20	0.12	0.17	1.1	35
EH60055	C2a	50	50	70	0.28	0.17	0.23	1.0	40
EH60056	C2a	65	50	70	0.45	0.23	0.40	0.9	50
EH60057	C2a	80	50	70	0.70	0.40	0.60	0.8	60
EH60072	C2a	40	70	90	0.10	0.06	0.08	1.7	50
EH60074	C2a	50	70	90	0.20	0.12	0.17	1.4	60
EH60076	C2a	80	70	90	0.45	0.23	0.40	0.9	100
EH60102	C2a	50	90	120	0.10	0.06	0.08	1.7	150
EH60104	C2a	70	90	120	0.20	0.12	0.17	1.2	250
EH60106	C2a	110	90	120	0.45	0.23	0.40	0.8	400

(1) Other values of capacitance available on request

PACKAGED DIODES			NOMINAL MICROWAVE CHARACTERISTICS					
Characteristics at 25°C			Thermal resistance $R_{TH}$	Threshold $P_L$	Leakage power $P_{OUT}$	Insertion loss $L$	Peak power $P_{IN}$	CW power $P_{IN}$
Test conditions			$P_{diss} = 1W$ case F 27d	f = 2.7 GHz 1dB Limiting	f = 2.7 GHz	f = 2.7 GHz $P_{IN} = -10$ dBm	1 $\mu$ s Pulse 1% DC	
Type	Standard case (2)		°C/W	dBm	dBm	dB	dBm	W
	$C_b = 0.18$ pF (3)	$C_b = 0.12$ pF (3)	max	typ.	typ.	typ.	max	max
DH60033	F 27d	M208	80	+ 10	+ 20	0.1	+ 50	2.0
DH60034	F 27d	M208	80	+ 10	+ 20	0.1	+ 50	2.0
DH60035	F 27d	M208	70	+ 10	+ 21	0.1	+ 52	2.5
DH60036	F 27d	M208	60	+ 10	+ 22	0.2	+ 53	3.0
DH60037	F 27d	M208	50	+ 10	+ 23	0.2	+ 56	4.0
DH60052	F 27d	M208	80	+ 15	+ 24	0.1	+ 52	2.5
DH60053	F 27d	M208	70	+ 15	+ 24	0.1	+ 52	2.5
DH60054	F 27d	M208	60	+ 15	+ 25	0.1	+ 53	3.0
DH60055	F 27d	M208	50	+ 15	+ 26	0.1	+ 54	3.5
DH60056	F 27d	M208	45	+ 15	+ 27	0.2	+ 57	4.0
DH60057	F 27d	M208	45	+ 15	+ 28	0.2	+ 58	5.0
DH60072	F 27d	M208	70	+ 18	+ 27	0.1	+ 54	3.0
DH60074	F 27d	M208	50	+ 18	+ 30	0.2	+ 55	4.0
DH60076	F 27d	M208	40	+ 18	+ 32	0.2	+ 58	5.0
DH60102	F 27d	M208	60	+ 20	+ 31	0.2	+ 56	3.5
DH60104	F 27d	M208	50	+ 20	+ 33	0.2	+ 59	5.0
DH60106	F 27d	M208	35	+ 20	+ 35	0.3	+ 61	7.0

(2) Other capacitance values available on request

(3)  $C_T = C_j + C_b$

**Temperature ranges:**

Operating junction ( $T_j$ ) : -55° C to +125° C

Storage : -65° C to +200° C