

2 SILICON SMALL-SIGNAL DIODES

■ HIGH FREQUENCY ATTENUATOR

($T_a = 25^\circ\text{C}$)

Type No.	Application	Max. ratings				Electrical characteristics					Package outline
		Storage temperature T_{stg} ($^\circ\text{C}$)	Junction temperature T_j ($^\circ\text{C}$)	Allowable loss P (mW)	Peak reverse voltage V_{RM} (V)	Reverse current (max) @ $V_R = 28\text{V}$ I_R (μA)	Forward current (min) @ $V_F = 1.0\text{V}$ I_F (mA)	Capacitance between pins (max) @ $V_R = 15\text{V}$ $f = 1\text{MHz}$ Ct (pF)	Forward series resistance (max) @ $I_F = 10\text{mA}$ $f = 50\text{MHz}$ rfs1 (Ω)	Forward series resistance (min) @ $I_F = 10\mu\text{A}$ $f = 50\text{MHz}$ rfs2 (k Ω)	
MI204	ATT	-55 ~ +175	+175	200	30	0.5	1.0	1.2	10	1.0	SC-40

■ SWITCHING DIODE

- High frequency power switching

Type No.	Application	Max. ratings			Electrical characteristics					Remarks
		Storage temperature T_{stg} ($^\circ\text{C}$)	Junction temperature T_j ($^\circ\text{C}$)	Allowable loss P (mW)	Reverse current (max) @ $V_R = 28\text{V}$ I_R (μA)	Forward current (min) @ $V_F = 1.0\text{V}$ I_F (mA)	Capacitance between pins (max) @ $V_R = 0\text{V}$, $f = 100\text{MHz}$ Ct (pF)	Forward series resistance (max) @ $I_F = 10\text{mA}$, $f = 50\text{MHz}$ rfs1 (Ω)	Forward series resistance (min) @ $I_F = 10\mu\text{A}$, $f = 50\text{MHz}$ rfs2 (k Ω)	
MI105	RFSW	-55 ~ +175	+175	200	0.5	30	0.5	20	1.0	

($T_a = 25^\circ\text{C}$)

Type No.	Application	Max. ratings			Electrical characteristics				Package outline
		Allowable temperature		Allowable loss P (mW)	Min. breakdown voltage $V_{(BR)R}$ (V) @ $I_R = 10\mu\text{A}$	Max. capacitance between pins Ct (pF) @ $V_R = 0\text{V}$ $f = 1\text{MHz}$	Max. forward series resistance r_{fs} (Ω) @ $I_F = 20\text{mA}$ $f = 470\text{MHz}$	Min. forward current I_F (mA) @ $I_F = 1.0\text{V}$	
		Storage temperature T_{stg} ($^\circ\text{C}$)	Junction temperature T_j ($^\circ\text{C}$)						
MI301	RFPS (5W)	-55 ~ +175	+175	350	80	3.0	1.2	100	SC-40
MI303	RFPS (10W)	-55 ~ +175	+175	500	180	4.0	1.0	200	Similar to SC-40
MI308	RFPS (10W)	-55 ~ +175	+175	500	50	1.6 ^{*1}	0.7 ^{*2}	100	Similar to SC-40
MI809	RFPS (10W)	-55 ~ +175	+175	1000	50	1.2 ^{*4}	0.75 ^{*3}	1V ^{*5}	surface mounting type

* 1 : @ $V_R = 0\text{V}$, $f = 100\text{MHz}$ * 2 : @ $I_F = 50\text{mA}$ * 3 : $I_F = 50\text{mA}$, $f = 100\text{MHz}$ * 4 : $V_R = 40\text{V}$, $f = 1\text{MHz}$ * 5 : $I_F = 50\text{mA}$

($T_a = 25^\circ\text{C}$)

Type No.	Application	Max. ratings				Electrical characteristics					Package outline	
		Storage temperature T_{stg} ($^\circ\text{C}$)	Junction temperature T_j ($^\circ\text{C}$)	Allowable loss P (W)	Peak reverse voltage V_{RM} (V)	Reverse current (max) @ $V_R = 270\text{V}$ I_{R1} (μA)	Reverse current (max) @ $V_R = 200\text{V}$ I_{R2} (mA)	Forward current (min) @ $V_F = 1.0\text{V}$ I_F (mA)	Forward series resistance (max) @ $I_F = 50\text{mA}$ @ $f = 470\text{MHz}$ rfs (Ω)	Capacitance between pins (max) @ $V_R = 12\text{V}$ @ $f = 1\text{MHz}$ Ct (pF)		Cut-off frequency (min) @ $V_R = 12\text{V}$ @ $f = 50\text{MHz}$ f_c (GHz)
MI402	RFPS (25W)	-55 ~ +175	+175	1.0	270	10	150	500	0.7	3.0	1.0	DO-41
MI407	RFPS (25W)	-55 ~ +175	+175	1.0	50	10 ^{*1}	500 ^{*2}	100	0.7	1.8 ^{*3}	-	DO-41

* 1 : @ $V_R = 50\text{V}$ * 2 : @ $V_R = 45\text{V}$ * 3 : $V_R = 0\text{V}$, $f = 100\text{MHz}$

3 SILICON TRANSISTORS

■ HIGH FREQUENCY HIGH POWER TRANSISTORS

- For Citizen's Band Transceiver, 27MHz 12V Series

($T_c = 25^\circ\text{C}$)

Type No.	Application	Structure	Max. ratings						P_o (min)					Remarks
			V_{CCO} (V)	V_{EEO} (V)	I_c (A)	P_c (W)	T_j ($^\circ\text{C}$)	Rth-c ($^\circ\text{C}/\text{W}$)	I_{cEO} (max) (μA)	V_{CC} (V)	f (MHz)	P_{in} (W)	P_o (W)	
2SC2086	HPA	Si,NPN,EP	75	4	1	0.8 [†]	+135	※137.5	100	12	27	0.015	0.3	50
2SC2166	HPA	Si,NPN,EP	75	5	4	12.5	+150	10	100	12	27	0.25	6	55
2SC1945	HPA	Si,NPN,EP	80	5	6	20	+150	6.25	100	12	27	0.5	14	60
2SC1969	HPA	Si,NPN,EP	60	5	6	20	+150	6.25	100	12	27	1	16	60
2SC3133	HPA	Si,NPN,EP	60	5	6	20	+150	6.25	100	12	27	0.5	13	60

Note 1 : Output 4W class lineup ($V_{CC} = 12\text{V}$) 10mW → 2SC2086 → 2SC2166 → 27MHz, 4W (min)

2 : 12W SSB lineup ($V_{CC} = 12\text{V}$) 1mW → 2SC2086 → 2SC2166 → 2SC1969 → 27MHz, 12W (PEP) (min)

† : $T_a = 25^\circ\text{C}$

* : Rth-a

- HF Band 13.5V Series for Mobile Radios

($T_c = 25^\circ\text{C}$)

2SC2097	HPA	Si,NPN,EP	50	5	15	125	+175	1.2	5000	13.5	30	4	75	55
2SC2904	HPA	Si,NPN,EP	50	5	22	200	+175	0.75	5000	12.5	30	7	100	55

- 220MHz, 28V Serie for fixity Board

($T_c = 25^\circ\text{C}$)

2SC2133	※ HPA	Si,NPN,EP	55	4	5	75	+175	2	2000	28	220	4.5	30	55
---------	-------	-----------	----	---	---	----	------	---	------	----	-----	-----	----	----

※ : Communication grade

ANTENNA SWITCH

MI301

**PIN DIODE
RF POWER SWITCHING**

DESCRIPTION

The MI301 PIN diode is employing high reliability glass construction, designed for solid state antenna switches in commercial two-way radios.

FEATURES

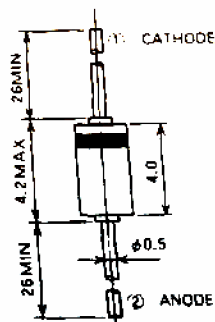
- Low insertion loss
- High isolation
- Small glass construction

APPLICATION

Antenna switching

OUTLINE DRAWING

Dimension mm



ANTENNA SWITCH

MI407

**PIN DIODE
RF POWER SWITCHING**

DESCRIPTION

The MI407 PIN diode is employing a high reliability glass construction, designed for solid state antenna switches in commercial two-way radios.

FEATURES

- High power handling
- High zero bias impedance
- Low forward bias resistance
- Low insertion loss, High isolation
- Low distortion (TX: spurious $< -80\text{dBc}$, RX: Inter-modulation -73dBc @ $90\text{dB}\mu$)

APPLICATION

High power antenna switch (25W output two-way radio)

OUTLINE DRAWING

Dimension: mm

