

Plastic package Surface Mount Silicon abrupt tuning varactor



SOT23 SURFACE MOUNT SILICON ABRUPT TUNING VARACTOR

Description

This series of silicon tuning varactors have an epitaxial mesa design with a high temperature passivation. This technology is used to produce abrupt tuning varactor in SOT23 package. This family is designed for a low cost medium to high volume market that may be supplied in tape and reel for automated pick and place assembly on surface mount circuit boards.

Applications

The DH71000 series abrupt tuning varactor are offered in a large selection of capacitance range. They provide the highest Q factor (low reverse series resistance) available for a 30 volts silicon device. Typical applications include low noise narrow and moderate frequency bandwidth applications (VCO mainly) from HF to Microwave frequencies (up to 3 GHz). Other applications are voltage tuned filters, phase shifters, delay line, etc.

NOTE: Variation of the junction capacitance versus reverse voltage follows this equation:

$$C_j (V_r) = \frac{C_j (0 V)}{\left[1 + \frac{V_r}{\phi} \right]^\gamma}$$

- V_r : Reverse voltage
- ϕ : Built-in potential .7V for Si
- γ : .5 for abrupt tuning varactor

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Electrical characteristics at $T_a = +25^\circ\text{C}$

Reverse breakdown voltage, $V_b = @10\ \mu\text{A}$: 30 V min.

Electrical parameters	Breakdown voltage V_{BR}	Junction capacitance C_j	Tuning ratio	Figure of merit Q
Test Conditions	$I_R = 10\ \mu\text{A}$	$F = 1\ \text{MHz}$ $V_R = 4\ \text{V}$	C_{j0V}/C_{j30V}	$V_R = 4\ \text{V}$ $F = 50\ \text{MHz}$
Type	V	pF	typ.	typ.
	min.	(1)		
DH71010	30	$1.0 \pm 20\%$	4.0	4300
DH71016	30	$1.6 \pm 20\%$	4.5	4100
DH71020	30	$2.0 \pm 20\%$	4.6	3900
DH71030	30	$3.0 \pm 20\%$	4.7	3400
DH71045	30	$4.5 \pm 20\%$	4.8	2200
DH71067	30	$6.7 \pm 10\%$	4.9	2600
DH71100	30	$10 \pm 10\%$	5.0	2200

(1) Other tolerance on request

Temperature ranges:

Operating junction (T_j): -55°C to $+125^\circ\text{C}$ Storage: -65°C to $+150^\circ\text{C}$

Packages

Packages	SOD323	SOT23	SOT23	SOT23	SOT143
DH71010	DH71010-60	DH71010-51	DH71010-53	DH71010-54	DH71010-70
DH71016	DH71016-60	DH71016-51	DH71016-53	DH71016-54	DH71016-70
DH71020	DH71020-60	DH71020-51	DH71020-53	DH71020-54	DH71020-70
DH71030	DH71030-60	DH71030-51	DH71030-53	DH71030-54	DH71030-70
DH71045	DH71045-60	DH71045-51	DH71045-53	DH71045-54	DH71045-70
DH71067	DH71067-60	DH71067-51	DH71067-53	DH71067-54	DH71067-70
DH71100	DH71100-60	DH71100-51	DH71100-53	DH71100-54	DH71100-70

(1) Other configuration available on request.

How to order?

DH71010	-	51	T3
Diode type		Package information	Conditioning
		51: single SOT23 53: dual common cathode SOT23 54: dual common anode SOT23 60: single SOD323 70: dual SOT143	T3: 3000 pieces tape & reel T10: 10000 pieces tape & reel blank: bulk