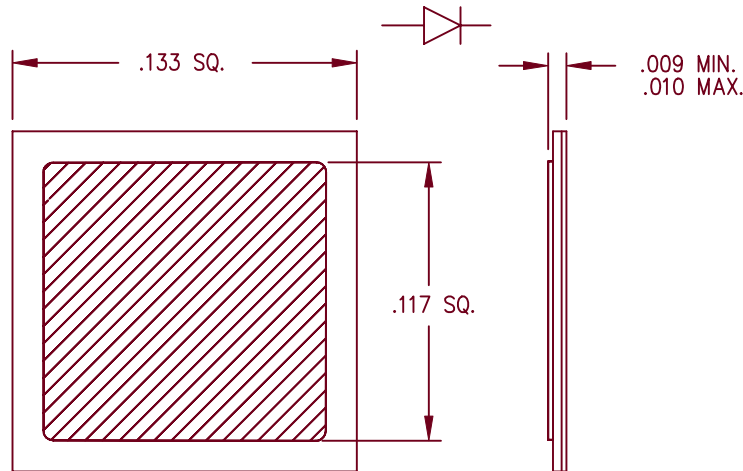


# Class HC and Class KC Equivalents 1N5812-16 Ultrafast Rectifier Die



- Ultrafast Recovery Rectifier
- Glass passivated
- 20A Average, up to 150V
- Solderable silver both sides
- Available with Al top and/or gold back – contact factory
- Cells with moly discs available – contact factory

Part Number	V <sub>RRM</sub>
1N5812HCE	50V
1N5812KCE	50V
1N5814HCE	100V
1N5814KCE	100V
1N5816HCE	150V
1N5816KCE	150V

## Electrical Characteristics (Properly Packaged)

Average forward current	I <sub>F(AV)</sub> 20 Amps	T <sub>C</sub> = 100°C, Square wave, R <sub>θJC</sub> = 1.5°C/W
Maximum surge current	I <sub>FSM</sub> 400 Amps	8.3 ms, half sine, T <sub>C</sub> = 100°C
Max peak forward voltage	V <sub>FM</sub> .86 Volts	I <sub>FM</sub> = 10A: T <sub>J</sub> = 25°C*
Max peak forward voltage	V <sub>FM</sub> .95 Volts	I <sub>FM</sub> = 20A: T <sub>J</sub> = 25°C*
Max peak forward voltage	V <sub>FM</sub> .78 Volts	I <sub>FM</sub> = 10A: T <sub>J</sub> = 100°C*
Max peak reverse current	I <sub>RM</sub> 1 mA	V <sub>RRM</sub> , T <sub>J</sub> = 100°C*
Max peak reverse current	I <sub>RM</sub> 10 μA	V <sub>RRM</sub> , T <sub>J</sub> = 25°C*
Max reverse recovery time	t <sub>RR</sub> 35 ns	I <sub>F</sub> = I <sub>R</sub> = 1A, (REC) = 0.1A, di/dt = 85A/μs
Maximum junction capacitance	C <sub>J</sub> 300 pF	V <sub>R</sub> = 10V, f = 1Mhz, T <sub>J</sub> = 25°C

\*Pulse test: Pulse width 300 μsec, Duty cycle 2%

## Group A Die Element Evaluation Electrical Tests

Subgroup	Method	Symbol	Min. Limit	Max. Limit	Unit
<u>Subgroup 2</u>					
Thermal Impedance	3101	Z <sub>JX</sub>		1.35	°C/W
Forward voltage @ 10Apk	4011	V <sub>F1</sub>		0.86	V(pk)
Forward voltage @ 20Apk	4011	V <sub>F2</sub>		0.95	Vdc(pk)
Reverse voltage @ rated V <sub>R</sub>	4016	I <sub>R1</sub>		10	μA dc
Breakdown voltage @ 100μA dc	4021	V(BR)1			μA dc
1N5812			60		Vdc
1N5814			110		Vdc
1N5816			160		Vdc
<u>Subgroup 3</u>					
Reverse current @ rated V <sub>R</sub> , 100°C	4016	I <sub>R2</sub>		1.00	mA dc
Forward voltage @ 10Apk, 100°C	4011	V <sub>F3</sub>		0.78	V(pk)
Forward voltage @ 10Apk, -65°C	4011	V <sub>F3</sub>		1.05	V(pk)
Breakdown volt. @ 100μA, -65°C	4021	V(BR)			V(pk)
1N5812			50		
1N5814			100		
1N5816			150		
<u>Subgroup 4</u>					
Reverse recovery time	4031	t <sub>rr</sub>		35	ns
Capacitance @ V <sub>R</sub> = 10V	4001	C <sub>J</sub>		300	pF
Forward recovery voltage	4026	V <sub>FR</sub>		2.2	V(pk)
Forward recovery time	4026	t <sub>rr</sub>		15	ns

7-30-01 Rev. IR