

SiC MODULES

Split Dual Si / SiC Hybrid IGBT Modules

Combining the industry's fastest power IGBT of the Powerex NFH-Series with a Zero Recovery® Schottky diode, Powerex is now offering split dual Si / SiC hybrid IGBT modules designed for use in high frequency applications; upwards of 30kHz for hard switching applications and 60 to 80 kHz for soft switching applications.

Applications Include:

- Energy Saving Power Systems (fans, pumps and consumer appliances)
- High Frequency Type Power Systems (UPS, high speed motor drives, induction heating, welder and robotics)
- High Temperature Power Systems (power electronics in electric vehicle and aviation systems)

SiC MOSFET Modules

Applications:

- High Efficiency Inverters
- High Frequency Power Supplies
- High Temperature Environment

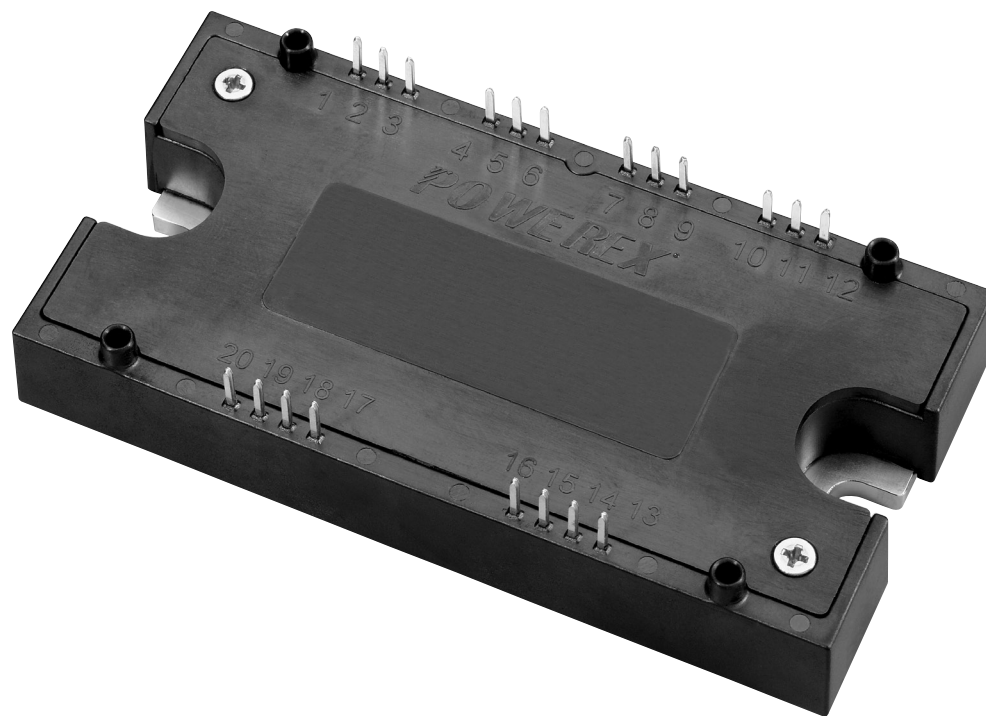
Circuit Configurations:

- Independent
- Dual
- In Parallel
- Common Collector
- Common Emitter

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*Zero Recovery is a registered trademark of Cree, Inc.



VOLTAGE: 1200V
CURRENT: 100A

Custom Modules

IGBT Assemblies

Assemblies

Fast Recovery Diode Modules

Thyristor & Diode Modules

Discrete Rectifiers

Discrete Thyristors

SiC Modules

Split Dual Si / SiC Hybrid IGBT Modules,

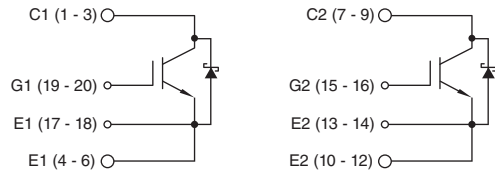
(Refer to device datasheets at www.pwr.com for test conditions.)

MAXIMUM RATINGS						ELECTRICAL CHARACTERISTICS										
Type	V _{CES} Volts	I _C Amperes	I _{CM} Amperes	T _{j(MAX)} °C	V _{RMS} Isolation Volts	Static Test				Dynamic						
						I _C Amperes	V _{GE} Volts	T _j = 25°C		V _{GE} = 0V, V _{CE} = 10V, f = 1KHz			Resistive Load Switching Times			
								Typ.	Typ.	Max.	C _{ies} nF	C _{oes} nF	C _{res} nF	t _{d(on)} ns	t _r ns	t _{d(off)} ns
QID1210005	1200	100	200	150	2500	100	6.0	5.0	6.5	16	1.3	0.3	TBD	TBD	TBD	TBD
QID1210006	1200	100	200	150	2500	100	6.0	5.0	6.5	16	1.3	0.3	TBD	TBD	TBD	TBD

Type	FREE WHEEL DIODE			THERMAL CHARACTERISTICS		Weight Grams	Outline Drawings	
	I _{FM} Amperes	V _{FM} Volts	t _{rr} ns	IGBT (Max.) R _{th(j-c)} °C/W	Diode (Max.) R _{th(j-c)} °C/W		Number	Page
QID1210005	80	2.0	—	0.17	0.32	270	1	B-4
QID1210006	80	2.0	—	0.21	0.39	130	1	B-4

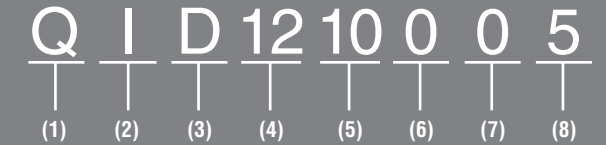
Hybrid Dual IGBTs

QID1210005, QID1210006



Numbering System

QID1210005 is a 1200V, 100A
Split Dual Si / SiC Hybrid IGBT Module



- (1) Product Line:
Q = Custom Module
- (2) Device:
I = IGBT
- (3) Configuration:
D = Double / Dual
- (4) Voltage:
12 = 1200
- (5) Current:
10 = 100

Serial Designation

SPECIAL:

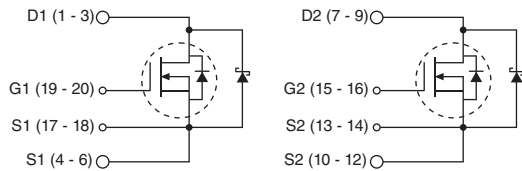
- (8) 0 – 9 (Numbered from 001 – 999 for
- (9) 0 – 9 each individual combination of
- (10) 0 – 9 7 previous digits.)

SiC MOSFET Modules, (Refer to device datasheets at www.pwr.com for test conditions.)

MAXIMUM RATINGS						ELECTRICAL CHARACTERISTICS					THERMAL CHARACTERISTICS	Weight Grams	Outline Drawings	
Type	V _{DSS} Volts	I _D Amperes	I _D (1) Amperes	P _d Watts	V _{RMS} Isolation Volts	R _{DS(on)} mΩ	V _{SD} Volts	V _{DS} = 10V, V _{GS} = 0V C _{ISS} nF C _{RSS} nF		Q _G nC	Interface Per Module R _{th(j-c)} °C/W		Number	Page
1200V Modules														
QJD1210010	1200	100	250	880	3000	15	4.3	10.2	0.1	500	0.17	270	1	B-4
QJD1210011	1200	100	250	880	3000	15	4.3	10.2	0.1	500	0.21	140	1	B-4

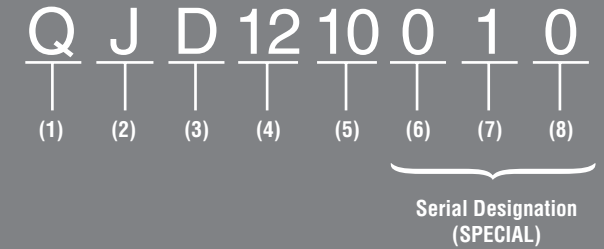
(1) Current rating when wired as a Dual

QJD1210010, QJD1210011



Numbering System

QJD1210010 is a 1200V, 100A SiC MOSFET Module

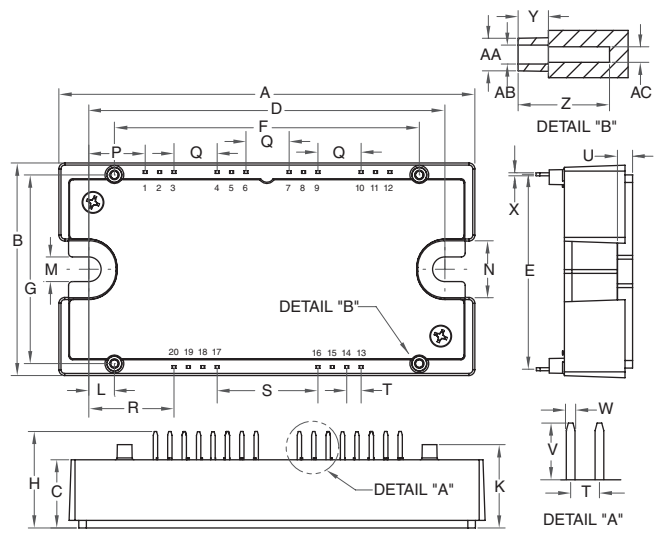


- (1) Product Line: Q = Custom Module
- (2) Device: J = MOSFET
- (3) Configuration: D = Split Dual
- (4) Voltage: 12 = 1200
- (5) Current: 10 = 100

Serial Designation

- SPECIAL:**
- (8) 0 – 9 (Numbered from 001 – 999 for
 - (9) 0 – 9 each individual combination of
 - (10) 0 – 9 7 previous digits.)

1 QID1210005, QID1210006,
QJD1210010, QJD1210011



Dim.	Inches	Millimeters	Dim.	Inches	Millimeters
A	4.32	109.8	Q	0.449	11.40
B	2.21	56.1	R	0.885	22.49
C	0.71	18.0	S	1.047	26.6
D	3.70±0.02	94.0±0.5	T	0.15	3.80
E	2.026	51.46	U	0.16	4.0
F	3.17	80.5	V	0.30	7.5
G	1.96	49.8	W	0.045	1.15
H	1.00	25.5	X	0.03	0.8
K	0.87	22.0	Y	0.16	4.0
L	0.266	6.75	Z	0.47	12.1
M	0.26	6.5	AA	0.17 Dia.	4.3 Dia.
N	0.59	15.0	AB	0.10 Dia.	2.5 Dia.
P	0.586	14.89	AC	0.08 Dia.	2.1 Dia.