



सरदार वल्लभभाईराष्ट्रीय प्रौद्योगिकी संस्थान, सूरत
SARDAR VALLABHBHAI NATIONAL INSTITUTE OF
TECHNOLOGY, SURAT
विधुत इंजीनियरिंगविभाग
ELECTRICAL ENGINEERING DEPARTMENT

SVNIT

No. EED/ Seed Money / 2074 / 2021-22

Date: 31/01/2022

To,

Sub: Enquiry for Supply of IGBT Modules Half Bridge and Drivers ICs for IGBT Modules.

Dear Sir,

You are requested to quote your prices for supply of stores listed overleaf. The quotations may be sent to the undersigned in a sealed envelope and subscribed as: "Quotation with reference to Enquiry No. EED/Seed Money / 2074 / 2021-22, dated: 31/01/2022" Your quotation should reach the undersigned on or before 14/02/2022 at 5:00 PM.

The quotations should be furnished with the following information.

1. The brand or make of each item should be specifically stated and wherever Necessary, Complete set of specifications and dimensions should be given.
2. If asked, samples are accompany the quotations or provide demonstration in the Department at any stage of purchase without claiming any financial benefits.
3. Sales tax, General tax, Central Sales tax, Custom duty, Insurance charges, Packing and Forwarding charges, if not included in the prices quoted, should be clearly specified.
4. This Special designed experimental setup is used for research purpose. So, concessional rate of GST is applicable.
5. The period of validity of the quotation should be at least 90 Days or more. Offers subject to prior sale may please be avoided.
6. The delivery period is to be clearly mentioned in the quotation.
7. The mode of delivery of the stores may be mentioned. The delivery should be F.O.R. Surat or at the Institute.
8. All concessions available to an educational institution should be specified and also taken into account while quoting.
9. This Institute is located within the limits of S.M.C. & exempted from the paying of Octroi duty on incoming goods from outside limits of S.M.C.
10. This Institute is registered with the dept. of scientific & industrial Research (DSIR) for the purpose of availing custom duty exemption & central excise Duty Exemption and hence the certificate to this

effect will be issued wherever it is necessary on demand.

11. Payment is normally made by cheque drawn on the S.V.N.I.T. Branch Office of State Bank of India Surat-395007 within a period of thirty days from the date of receipt of stores. If case of any official delay, any type of claimed extra payment will not be considered.
12. Your Specification & terms-conditions should be as per the format attached, must be on your company letterhead & signed by an authorized person.
13. Offered quotation may be rejected if any ambiguity is found in offered specification, terms & conditions supplied by party in specified tabular format.
14. Preference may be given to the supplier having status of authorized dealer of manufacturer, with a view to ensure reliable after sales service for the item.
15. Provide Photograph of quoted items with specifications and list of purchase order given by any agency/institute etc. with contact Number.
16. **IGBT Modules Half Bridge and Drivers ICs for IGBT Modules should be of Semikron make.**
17. **Finally, Items will be accepted after satisfactory performance in our laboratory according to our requirement.**
18. The Director reserves the right to accept stores, which are not strictly in confirming with the specifications but otherwise, found suitable.
19. The Head of Department /Director reserves the right to stop the purchase process at any stage.
20. An enquiry may send in the following address.

To,

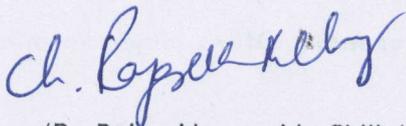
The Director,

(kind attention, Head Electrical Engineering Department),

Sardar Vallabhbhai National Institute of Technology (SVNIT), Dumas road, Ichhchnath, Surat-395007
(Gujarat)

Ph 0261-2201561, 2201562 (office, EED)

Yours faithfully,



(Dr. Rajasekharareddy Chilipi)
Principle Investigator



Head, EED

PTO

Price List

Voltage and Current sensors

Sr. No.	Description	Specifications	Qty.	Make	Unit cost including all charges (in Rs.) without GST	Total cost (in Rs.) with GST
1.	IGBT Modules Half Bridge	Saturated collector to emitter voltage: 1200 V @ $T_j = 25^\circ\text{C}$. Saturated gate to emitter voltage Range: -20 - +20V . Nominal collector current: 100 A. Annexure-A	12	Semikron		
2.	Drivers ICs for IGBT Modules	Supply voltage primary: 16 V Output peak current: 15 A Output average current: 50mA Max. switching frequency: 50 kHz Collector emitter voltage sense across the IGBT :1700 V Annexure-A	8	Semikron		
Total (in Rs.)						

- Note: (1) Quote item cost/price including all type of charges and GST as separately.
 (2) If required, please add extra pages with quotation and for details related to specification see attached annexure.
 (3) Attached Photograph of above items (if possible)
 (4) Quotation will not be considered for further process without Compliance Report in form of ANNEXURE-B.

Terms & Conditions

1.	Percentage of GST with certificate for research purpose	
2.	Percentage of GST without certificate for research purpose	
3.	Delivery Period	
4.	Validity of the quotation	
5.	Warranty/Guarantee	
6.	Make and model for each items	
7.	Other Terms & conditions	
8.	Submission of Compliance Report in ANNEXURE-B	Yes/ No

Place:

Date :

Signature and stamp of agency

ANNEXURE-A
Complete Specification/Details

Name of Items	Required specification:
IGBT Modules Half Bridge	<p>IGBT</p> <p>(1) Saturated collector to emitter voltage: 1200 V @ $T_j = 25^\circ\text{C}$</p> <p>(2) Collector current: 160 A @ $T_j = 175^\circ\text{C}$</p> <p>(3) Nominal collector current: 100 A</p> <p>(4) Saturated gate to emitter voltage Range: -20 - +20V</p> <p>Inverse diode</p> <p>(5) inverse diode current: 121 A</p> <p>(6) nominal inverse diode current: 121 A</p> <p>(7) Junction Temperature: -40 ... +175 °C</p> <p>Module</p> <p>(8) RMS Current: 200 A @ $T_{\text{terminal}} = 80^\circ\text{C}$</p> <p>(9) Storage temperature: -40 ... +125 °C</p> <p>(10) insulation test voltage input - output (AC sinus 50 Hz, $t = 1 \text{ min}$): 4000V</p>
Drivers ICs for IGBT Modules	<p style="text-align: center;">Required specification:</p> <p>Absolute maximum ratings</p> <p>(1) Supply voltage primary: 16 V</p> <p>(2) input signal voltage (HIGH): +0.3 V</p> <p>(3) input signal voltage (LOW): -0.3 V</p> <p>(4) Output peak current: 15 A</p> <p>(5) Output average current: 50mA</p> <p>(6) Max. switching frequency: 50 kHz</p> <p>(7) Collector emitter voltage sense across the IGBT : 1700 V</p> <p>(8) Rate of rise and fall of voltage secondary to primary side: 50 kV/ μs</p> <p>(9) Insulation test voltage input - output (AC, rms, 2s): 4000 V</p> <p>(10) Partial discharge extinction voltage, rms, $Q_{\text{PD}} \leq 10\text{pC}$: 1500 V</p> <p>(11) Insulation test voltage output 1 - output 2 (AC, rms, 2s): 1500 V</p> <p>(12) Minimum rating for external R_{Gon} and R_{Goff}: 1.5 Ω and 1.5 Ω</p> <p>(13) Max. rating for output charge per pulse: 2.5 μC</p> <p>(14) operating temperature: -40 ... +85 °C</p> <p>(15) Storage temperature: -40 ... +85 °C</p> <p>characteristics</p> <p>(1) Supply voltage primary side: 14.4 - 15.6 V</p> <p>(2) Supply current primary (no load) : 80 mA.</p> <p>(3) Supply current primary (max.): 450 mA</p> <p>(4) Input signal voltage on / off: 15/0 V</p> <p>(5) Input threshold voltage (HIGH): 12.3 V</p> <p>(6) Input threshold voltage (Low): 4.6 V</p> <p>(7) input resistance (switching/HALT signal): 10 kΩ</p> <p>(8) gate Turn off and Turn on output voltage: -7 V - 15 V</p> <p>(9) Input-output turn-on and turn-off propagation time: 1.1 μs</p> <p>(10) Error input-output propagation time Range: 5.4 - 7.9 μs</p> <p>(11) Error reset time: 0.009 ms</p> <p>(12) Top-Bot interlock dead time: 3 μs</p> <p>(13) Coupling capacitance prim sec: 12pF</p> <p>(14) Weight: 28 g</p> <p>(15) Mean Time Between Failure : 2.5 10⁴h</p>

Place:

Date :

Signature and stamp of agency
with contact details

ANNEXURE-B
Compliance Report submitted by Agency
Voltage and Current Sensors

Name of Items	Required specifications: IGBT Half Bridge Modules	Estimated value according to standard/ attached Documents	Compliance Yes/No
(11) Special designed "Multi Tapping Single Phase Inductor" (for lagging load arrangement)	IGBT		
	(1) saturated collector to emitter voltage: 1200 V @ $T_j = 25^\circ\text{C}$		
	(2) Collector current: 160 A @ $T_j = 175^\circ\text{C}$		
	(3) nominal collector current: 100 A		
	(4) saturated gate to emitter voltage Range: -20 - +20V		
	Inverse diode		
	(5) inverse diode current: 121 A		
	(6) nominal inverse diode current: 121 A		
	(7) Junction Temperature: -40 ... +175 °C		
	Module		
	Required Specifications of Drivers ICs for IGBT Modules Absolute Maximum Ratings		
	1) Supply voltage primary: 16 V		
	(2) input signal voltage (HIGH): +0.3 V		
	(3) input signal voltage (LOW): -0.3 V		
	(4) Output peak current: 15 A		
	(5) Output average current: 50mA		
	(6) Max. switching frequency: 50 kHz		
	(7) Collector emitter voltage sense across the IGBT :1700 V		
	(8) Rate of rise and fall of voltage secondary to primary side: 50 kV/ μs		
	(9) Insulation test voltage input - output (AC, rms, 2s): 4000 V		
	(10) Partial discharge extinction voltage, rms, $Q_{PD} \leq 10\text{Pc}$: 1500 V		
	(11) Insulation test voltage output 1 - output 2 (AC, rms, 2s): 1500 V		
	(12) Minimum rating for external R_{Gon} and R_{Goff} : 1.5 Ω and 1.5 Ω		
	(13) Max. rating for output charge per pulse: 2.5 μC		
	(14) operating temperature: -40 ... +85 °C		
(15) Storage temperature: -40 ... +85 °C			

Characteristics		
(1) Supply voltage primary side : 14.4 -15.6 V		
(2) Supply current primary (no load) : 80 mA		
(3) Supply current primary side (max.): 450 mA		
(4) Input signal voltage on / off : 15/0 V		
(5) Input threshold voltage (HIGH): 12.3 V		
(6) Input threshold voltage (LOW): 4.6 V		
(7) Input resistance (switching/HALT signal): 10 k Ω		
(8) gate Turn off and Turn on output voltage: -7 V - 15 V		
(9) Input-output turn-on and turn- off propagation time : 1.1 μ C		
(10) Error input-output propagation time: 5.4 – 7.9 μ s		
(11) Error reset-time: 0.009 ms		
(12) Top-Bot interlock dead time: 3 μ s		
(13) Coupling capacitance prim sec: 12pF		
(14) Weight: 28 g		
(15) Mean Time Between Failure : 2.5 10 ⁶ h		
(16) is Relevant Skind Mounting PCB provided?		

Place:

Date :

Signature and stamp of agency
with contact details