



Diode Measurement System

For testing the recovery and Turn-ON characteristics of diodes



TYPE OF TESTS

- for IF : 0,1 – 2,0A : trr (Jedec)
- for IF : 0,2 – 100A* : trr, I_{rr}, QRA
- for IF : 1 – 50A : trf, V_f, V_{fp}

(* for the measuring ranges please see the modules table page 5)

DMS Measurement System with QRR 50 A – 02 power module
(picture for illustration purposes only)

GENERAL DESCRIPTION

The LEMSYS DMS equipment has been modularly designed to enable it to measure different parameters with a single rack.

The main frame is made to be controlled by a Windows computer (PC) connected via the RS 232 serial bus. User-friendly software with automatic module detection enables flexibility and simplicity for setting the test conditions, performing test and storing results.

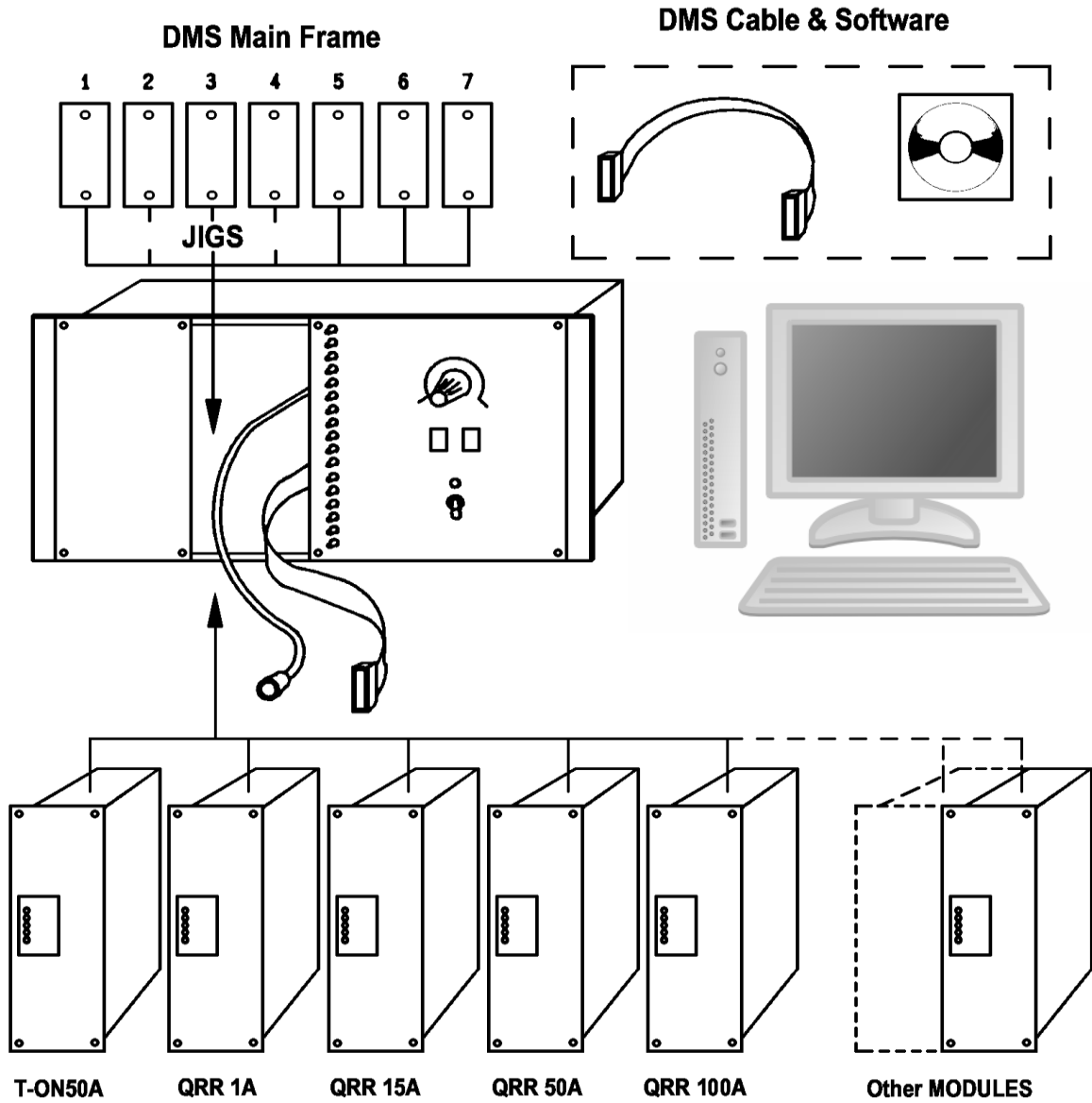
A set of plug-in modules is available to achieve the measurement of most dynamic switching parameters of the diodes.

Special modules are made on request according to customer's specifications.

The DMS is especially useful for component qualification, characterization and can also be used as a maintenance unit.

GENERAL DESCRIPTION (continued)

System synoptic:



CHARACTERISTICS

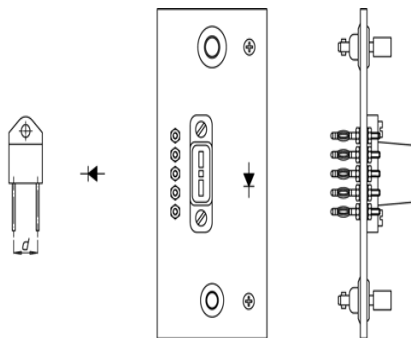
Power supply:	230 V 50 / 60 Hz	320 VA	(115 V on request)
Function:	Supply the signals and the necessary supply voltages for the operation of the available DMS modules and heating unit. Provide the location for one power module and one heating unit.		
Available DMS modules:	T-ON 50 A QRR 1 A QRR 15 A QRR 50 A (QRR 50 A - 01) (QRR 50 A - 02) (QRR 50 A - 03) QRR 100 A (QRR 100A - 02)		
Optional Heating unit:	BC 01 This list can be extended to other modules to be defined later on.		
Features:	Internal power supply connections Cables for the connection to one of the above listed modules The module is installed inside the rack RS 232 output for PC Windows remote control		
Front panel controls:	14 visualized digital controls (push buttons and LED's) 1 analog control 0 - 100 % (potentiometer) 2 test buttons (Temporary / Continuous) ON / OFF switch and ON lamp Supply OK LED Remote LED		
Protection:	2 fuses 6.3 x 32	315 mA FTT 1 A FTT	for 230 VAC operation for 230 VAC operation 630 mA FTT 2 A FTT for 115 VAC operation for 115 VAC operation
Conditions of use:	Working temperature	25 °C ± 10 °C	
	Storage temperature	25 °C ± 45 °C	
	Relative humidity	10 - 80 %	(non condensing)
	Environment:	class 10000 clean room compatible	
Software:	The various measurements, which can be carried out with the equipment, are available only with the software option. The software is designed for PC Windows computer equipped with a RS 232 interface. The DMS Main Frame associated with a DMS module can be used in manual mode as a signal generator for diode testing. In such case, the measurements are made with an external oscilloscope (not included).		
External dimensions:	Width	approx. 450 mm	
	Height	approx. 285 mm	
	Depth	approx. 395 mm + 130 mm for protection lid	
	Weight	approx. 19 kg with power module	

CHARACTERISTICS (continued)

Supplied accessories: 1 set of spare parts
 1 set of standard jigs

Jigs references : Jig for vertical output diode
 Jig for axial output diode
 Jig for vertical output diode
 Blank jig plate

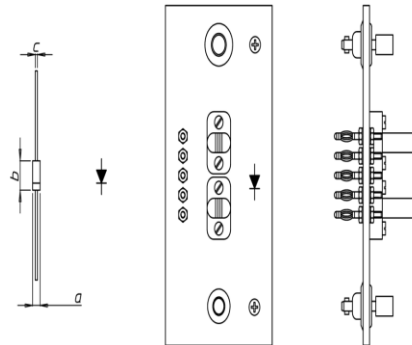
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Jig for vertical output diode

$4.83 \text{ mm} \leq d \leq 11 \text{ mm}$
 (0.19 in. $\leq d \leq$ 0.43 in.)

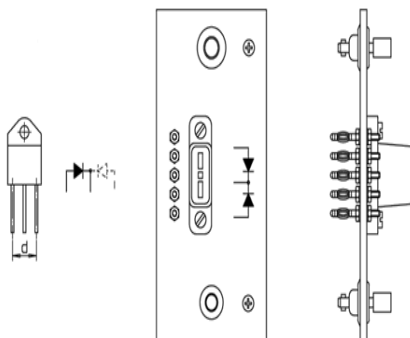
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Jig for axial output diode

$a \leq 14 \text{ mm}$ $b \leq 14 \text{ mm}$ $c \leq 1 \text{ mm}$
 ($a \leq 0.55 \text{ in.}$ $b \leq 0.55 \text{ in.}$ $c \leq 0.04 \text{ in.}$)

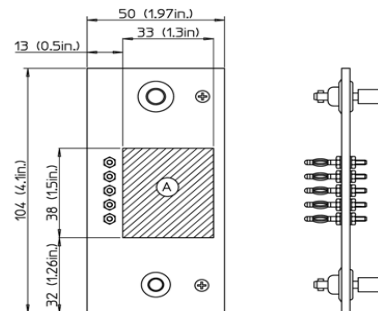
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Jig for vertical output diode
 "common cathode"

$4.83 \text{ mm} \leq d \leq 11 \text{ mm}$
 (0.19 in. $\leq d \leq$ 0.43 in.)

No. 88.27.20.000.0



Blank jig plate

A = Disposition surface

Important note : the above jigs are not adapted to be used with the heating unit model BC 01.

POWER MODULES

Turn-OFF modules			
Type	Current	Voltage	Tests
DMS QRR 1 A	IF = 0.1 – 2 A dIF/dt = 10 – 100 A/μs IRR = 0.1 – 1.5 A	VRR = 30 V	t _{rr} : 10ns – 4 μs (as per Jedec standard)
DMS QRR 15 A	IF = 0.2 – 15 A dIF/dt = 10 – 150 A/μs	VRR = 30 / 50 / 100 / 200 / 400 V	t _{rr} : 10ns – 4 μs I _r : 0.2 – 10 A T _{rrA} : 10 ns – 4 μs Q _{rrA} : 1 nC – 20 μC
DMS QRR 15 A - 01	IF = 0.2 – 15 A dIF/dt = 10 – 150 A/μs	VRR = 10 / 15 / 20 / 30 / 400 V	t _{rr} : 10ns – 4 μs I _r : 0.2 – 10 A T _{rrA} : 10 ns – 4 μs Q _{rrA} : 1 nC – 20 μC
DMS QRR 15 A - 02	IF = 1 – 15 A dIF/dt = 20 – 200 A/μs	VRR = 5 / 10 / 15 / 20 / 30 V	t _{rr} : 10ns – 4 μs I _r : 0.5 – 10 A T _{rrA} : 10 ns – 4 μs Q _{rrA} : 1 nC – 20 μC
DMS QRR 50 A	IF = 1 – 50 A dIF/dt = 20 – 300 A/μs	VRR = 30 / 50 / 100 / 200 / 400 V	t _{rr} : 10ns – 4 μs I _r : 0.8 – 30 A T _{rrA} : 10 ns – 4 μs Q _{rrA} : 2 nC – 50 μC
DMS QRR 50 A - 01	IF = 1 – 50 A dIF/dt = 20 – 300 A/μs	VRR = 5 / 10 / 15 / 20 / 400 V	t _{rr} : 10ns – 4 μs I _r : 0.8 – 30 A T _{rrA} : 10 ns – 4 μs Q _{rrA} : 2 nC – 50 μC
DMS QRR 50 A - 02	IF = 1 – 50 A dIF/dt = 20 – 500 A/μs	VRR = 30 / 50 / 100 / 200 / 400 V	t _{rr} : 10ns – 4 μs I _r : 0.8 – 30 A T _{rrA} : 10 ns – 4 μs Q _{rrA} : 2 nC – 50 μC
DMS QRR 50 A - 03	IF = 1 – 50 A dIF/dt = 20 – 300 A/μs	VRR = 5 / 7 / 15 / 20 / 400 V	t _{rr} : 10ns – 4 μs I _r : 0.8 – 30 A T _{rrA} : 10 ns – 4 μs Q _{rrA} : 2 nC – 50 μC
DMS QRR 100 A	IF = 20 – 100 A dIF/dt = 100 – 1000 A/μs	VRR = 100 / 200 / 400 / 600 / 1000 V	t _{rr} : 10ns – 4 μs I _r : 2 – 60 A T _{rrA} : 10 ns – 4 μs Q _{rrA} : 2 nC – 50 μC
DMS QRR 100 A - 02	IF = 20 – 100 A dIF/dt = 100 – 1000 A/μs	VRR = 20 / 30 / 100 / 400 / 1000 V	t _{rr} : 10ns – 4 μs I _r : 2 – 60 A T _{rrA} : 10 ns – 4 μs Q _{rrA} : 2 nC – 50 μC

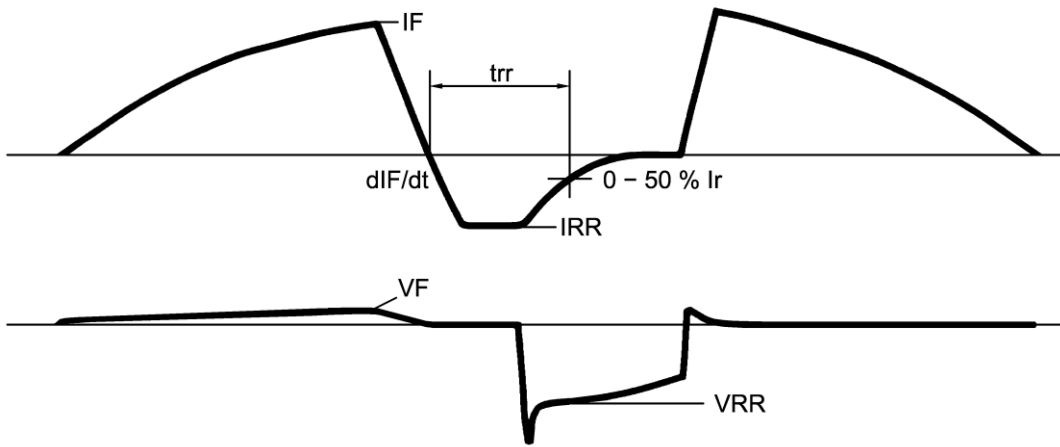
Turn-ON module			
Type	Current	Voltage	Tests
DMS T-ON 50 A	IF = 1 – 50 A tr = 0.1 – 3.2 μs	N/A	t _{fr} : 10ns – 10 μs V _{fp} : 0.5 – 100 V V _f : 0 – 10 V

For more information, please see detailed module specifications.

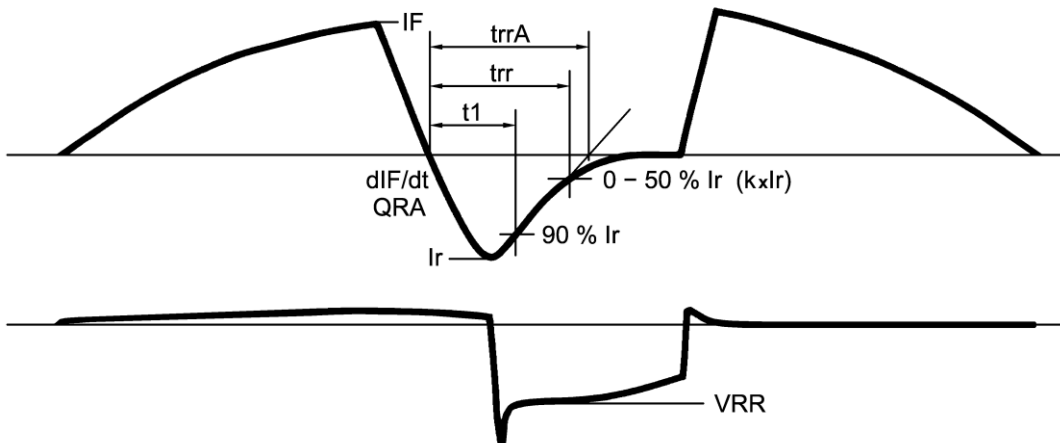
The power modules are not included in the DMS main frame and have to be ordered separately.

WAVEFORMS

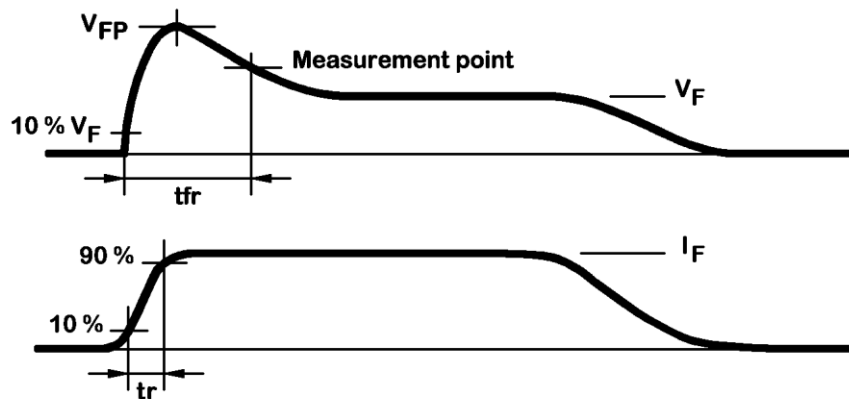
Turn-OFF QRR 1A



Turn-OFF

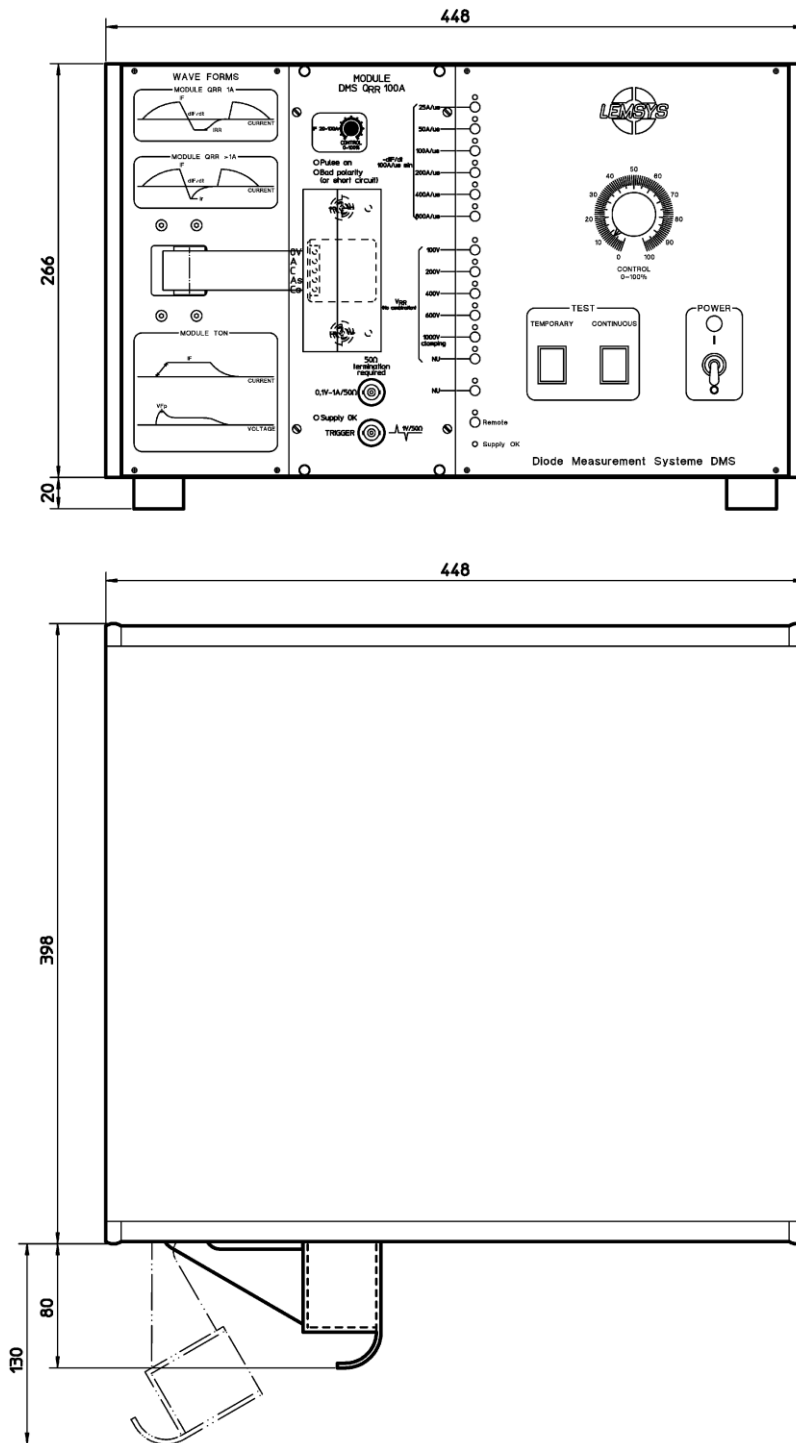


Turn-ON



OVERALL DIMENSIONS

(in mm)



Note:
LEMSYS SA reserves the right to carry out modifications on its products without any previous notice

Data subject to change without notice

For more information please contact: lemsys.serviceinfo@lemsys.com

www.lemsys.com