

FDMS8622-NC-VB Datasheet

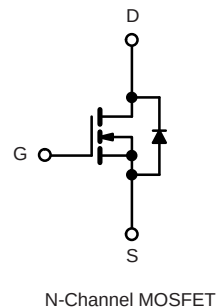
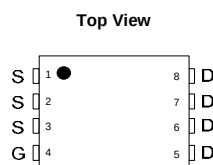
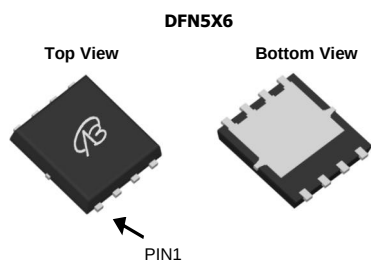
N-Channel 100V (D-S) MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$R_{DS(on)}$ (Ω)	I_D (A) ^a
100	0.018 at $V_{GS} = 10$ V	30
	0.022 at $V_{GS} = 4.5$ V	25

FEATURES

- 175 °C Junction Temperature
- SGT technology Power MOSFET
- Material categorization:


RoHS
 COMPLIANT


ABSOLUTE MAXIMUM RATINGS ($T_C = 25$ °C, unless otherwise noted)

Parameter	Symbol	Limit	Unit
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_J = 175$ °C) ^b	I_D	30	A
		20 ^a	
Pulsed Drain Current	I_{DM}	90	
Continuous Source Current (Diode Conduction)	I_S	30 ^a	
Avalanche Current	I_{AS}	15	
Single Avalanche Energy (Duty Cycle ≤ 1 %)	E_{AS}	20	mJ
Maximum Power Dissipation	P_D	46	W
		1.9 ^b , 6 ^{b, c}	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to 175	°C

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	R_{thJA}	20	25	°C/W
		40	80	
Maximum Junction-to-Case	R_{thJC}	1.8	3.2	

Notes:

a. Package limited.

b. Surface mounted on 1" x 1" FR4 board.

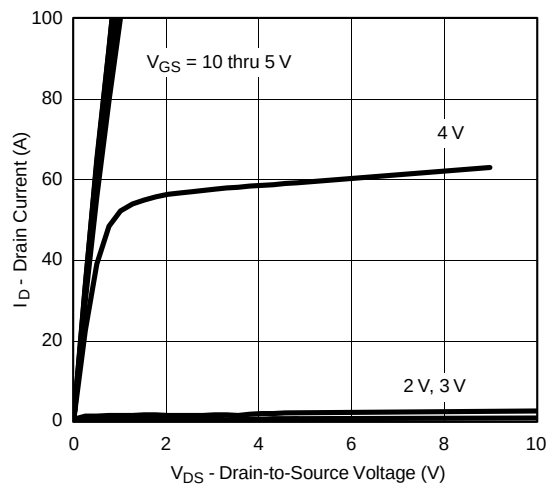
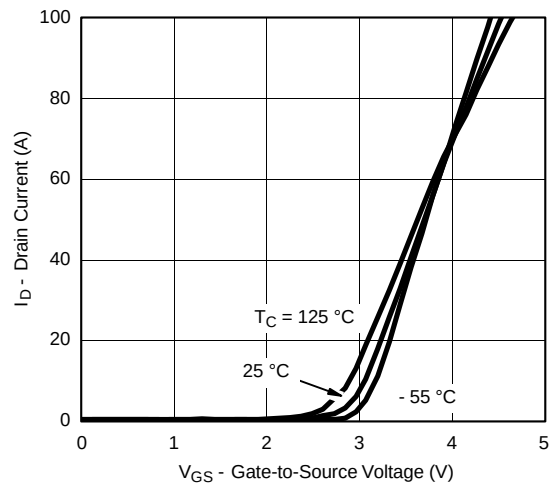
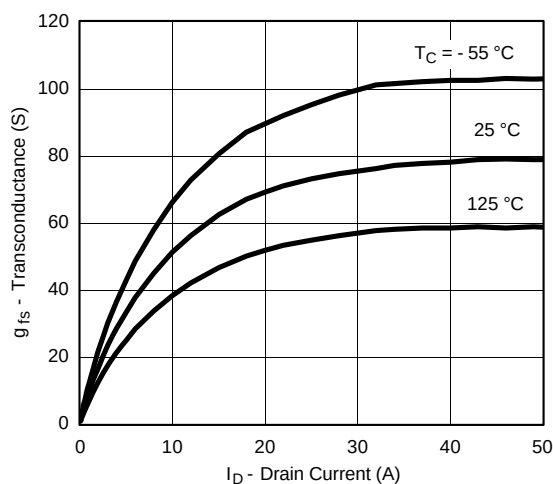
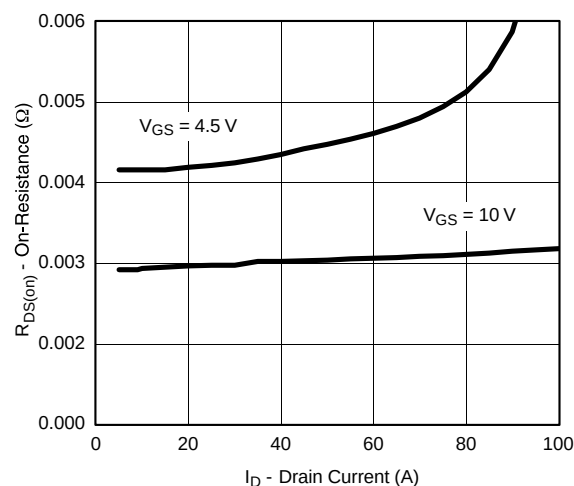
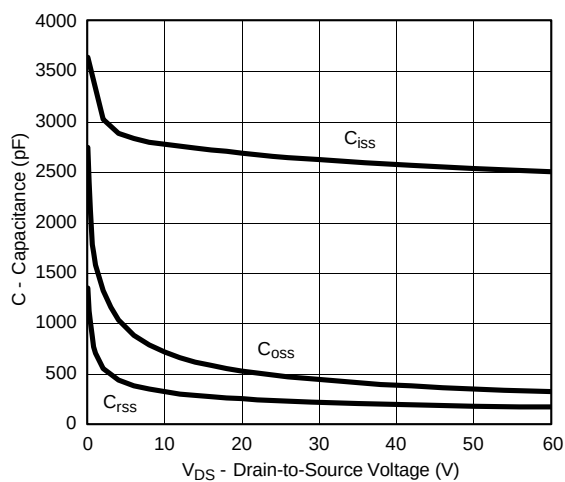
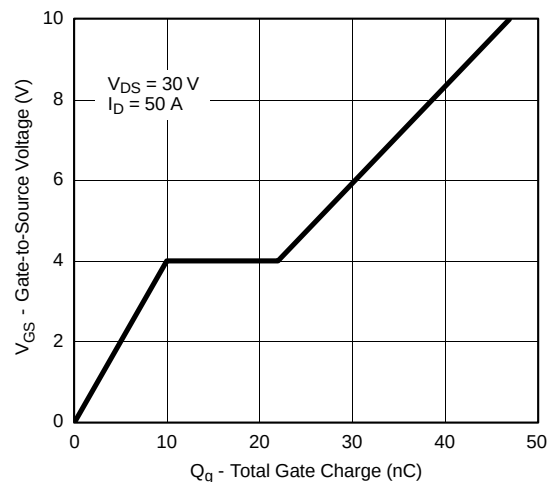
 c. $t \leq 10$ s.

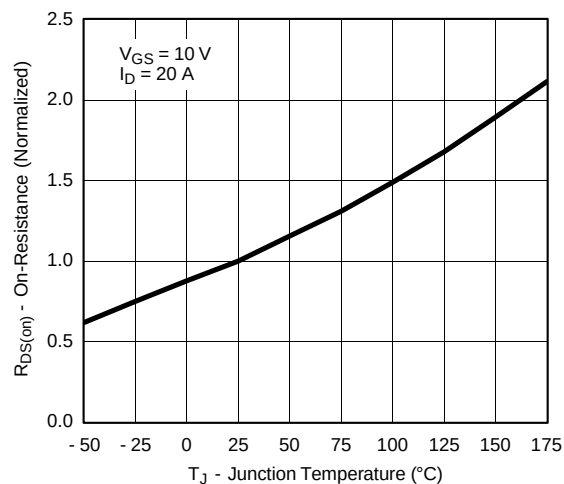
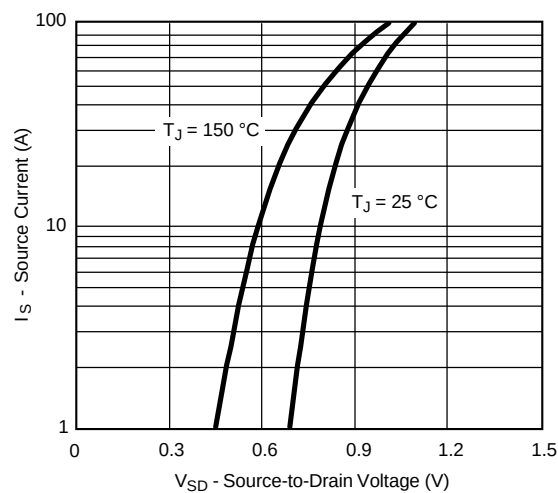
SPECIFICATIONS (T _J = 25 °C, unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min.	Typ. ^a	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{DS}	V _{GS} = 0 V, I _D = 250 μA	100			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	1	2	3	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 20 V			± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30V, V _{GS} = 0 V			1	μA
		V _{DS} = 30V, V _{GS} = 0 V, T _J = 125 °C			50	
		V _{DS} = 30V, V _{GS} = 0 V, T _J = 175 °C			250	
On-State Drain Current ^b	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 10 V	30			A
Drain-Source On-State Resistance ^b	R _{DS(on)}	V _{GS} = 10 V, I _D = 20 A		0.018		Ω
		V _{GS} = 10 V, I _D = 20 A, T _J = 125 °C		0.025		
		V _{GS} = 10 V, I _D = 20 A, T _J = 175 °C		0.036		
		V _{GS} = 4.5 V, I _D = 10 A		0.022		
Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, I _D = 20 A		60		S
Dynamic						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 100 V, f = 1 MHz		1000		pF
Output Capacitance	C _{oss}			270		
Reverse Transfer Capacitance	C _{rss}			105		
Total Gate Charge ^c	Q _g	V _{DS} = 100 V, V _{GS} = 10 V, I _D = 50 A		35	60	nC
Gate-Source Charge ^c	Q _{gs}			16		
Gate-Drain Charge ^c	Q _{gd}			15		
Turn-On Delay Time ^c	t _{d(on)}	V _{DD} = 100 V, R _L = 0.6 Ω I _D ≅ 50 A, V _{GEN} = 10 V, R _g = 2.5 Ω		12	24	ns
Rise Time ^c	t _r			15	25	
Turn-Off Delay Time ^c	t _{d(off)}			35	50	
Fall Time ^c	t _f			20	30	
Source-Drain Diode Ratings and Characteristics (T _C = 25 °C)						
Pulsed Current	I _{SM}				20	A
Diode Forward Voltage	V _{SD}	I _F = 20 A, V _{GS} = 0 V		1	1.5	V
Reverse Recovery Time	t _{rr}	I _F = 20 A, di/dt = 100 A/μs		4	135	ns

Notes:

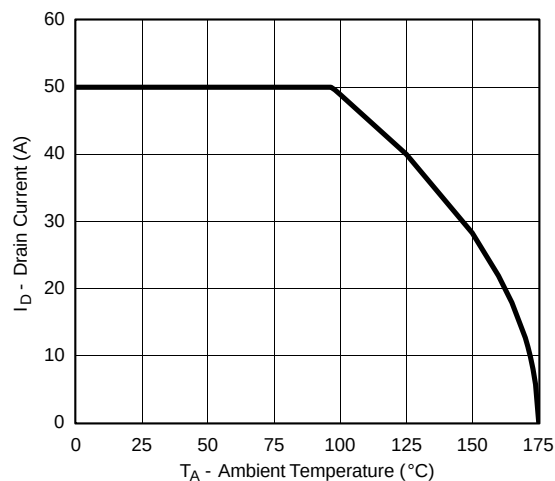
- a. For design aid only; not subject to production testing.
 b. Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
 c. Independent of operating temperature.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

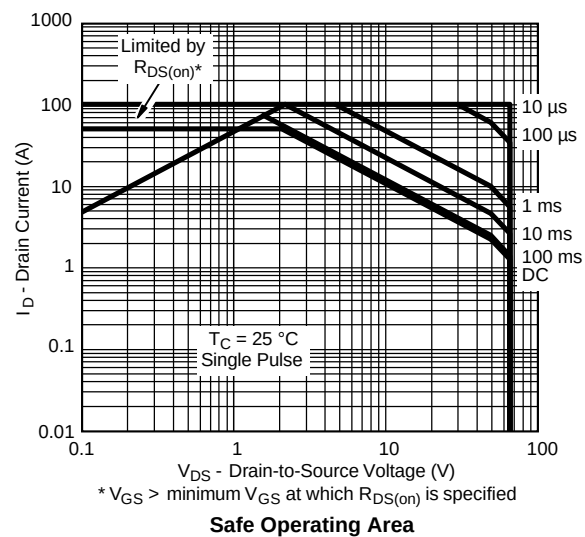
TYPICAL CHARACTERISTICS (25 °C unless noted)**Output Characteristics****Transfer Characteristics****Transconductance****On-Resistance vs. Drain Current****Capacitance****Gate Charge**

TYPICAL CHARACTERISTICS (25 °C unless noted)**On-Resistance vs. Junction Temperature****Source-Drain Diode Forward Voltage**

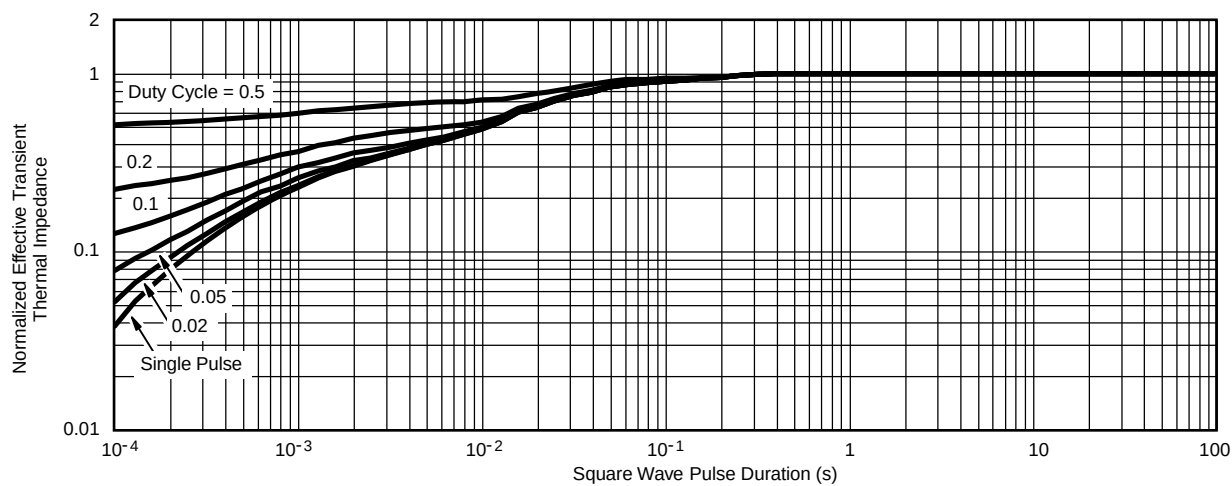
THERMAL RATINGS



Maximum Drain Current vs. Ambient Temperature



Safe Operating Area



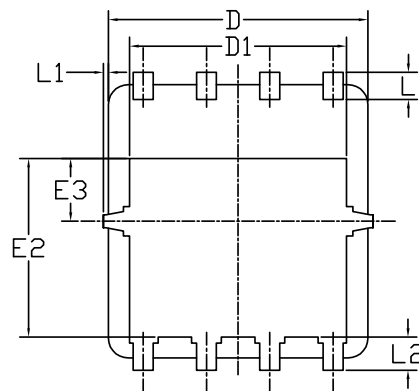
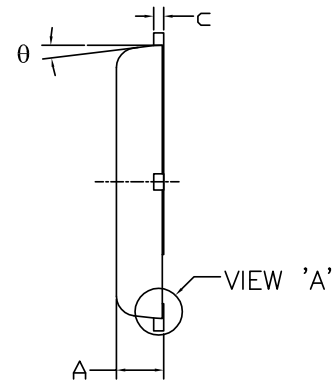
Normalized Thermal Transient Impedance, Junction-to-Case

Technical drawing of a square flange with dimensions and a table.

Dimensions shown in the drawing:

- $\varnothing$ (Diameter symbol)
- 0.05
- (M)
- b
- e
- E
- E

Symbol	Unit	Value
$\varnothing$	mm	100
0.05	mm	0.05
(M)	mm	100
b	mm	100
e	mm	100
E	mm	100
E	mm	100



Technical drawing of a stepped shaft with dimensions in inches. The shaft has a total length of 4.60 inches. The main body has a diameter of 0.635 inches. There are four steps of varying heights. The first step on the left has a height of 0.50 inches. The second step has a height of 0.55 inches. The third step has a height of 0.615 inches. The fourth step on the right has a height of 0.65 inches. The distance between the first and second steps is 0.50 inches. The distance between the second and third steps is 0.77 inches. The distance between the third and fourth steps is 0.635 inches. The total length of the shaft is 4.60 inches. The diameter of the main body is 0.635 inches. The diameter of the first step is 0.50 inches. The diameter of the second step is 0.55 inches. The diameter of the third step is 0.615 inches. The diameter of the fourth step is 0.65 inches.

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.85	0.95	1.00	0.033	0.037	0.039
A1	0.00	----	0.05	0.000	----	0.002
b	0.30	0.40	0.50	0.012	0.016	0.020
c	0.15	0.20	0.25	0.006	0.008	0.010
D	5.10	5.20	5.30	0.201	0.205	0.209
D1	4.25	4.35	4.45	0.167	0.171	0.175
E	5.45	5.55	5.65	0.215	0.219	0.222
E1	5.95	6.05	6.15	0.234	0.238	0.242
E2	3.525	3.625	3.725	0.139	0.143	0.147
E3	1.175	1.275	1.375	0.046	0.050	0.054
e	1.27 BSC			0.050 BSC		
L	0.45	0.55	0.65	0.018	0.022	0.026
L1	0	----	0.15	0	----	0.006
L2	0.68 REF			0.027 REF		
θ	0°	----	10°	0°	----	10°

NOTE

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
MOLD FLASH AT THE NON-LEAD SIDES SHOULD BE LESS THAN 6 MILS EACH.

2. CONTROLLING DIMENSION IS MILLIMETER.
CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.

Disclaimer

All products due to improve reliability, function or design or for other reasons, product specifications and data are subject to change without notice.

Shenzhen VBsemi Electronics Co., Ltd., branches, agents, employees, and all persons acting on its or their representatives (collectively, the "Shenzhen VBsemi"), assumes no responsibility for any errors, inaccuracies or incomplete data contained in the table or any other any disclosure of any information related to the product.(www.VBsemi.com)

Shenzhen VBsemi makes no guarantee, representation or warranty on the product for any particular purpose of any goods or continuous production. To the maximum extent permitted by applicable law on Shenzhen VBsemi relinquished: (1) any application and all liability arising out of or use of any products; (2) any and all liability, including but not limited to special, consequential damages or incidental ; (3) any and all implied warranties, including a particular purpose, non-infringement and merchantability guarantee.

Statement on certain types of applications are based on knowledge of the product is often used in a typical application of the general product VBsemi Shenzhen demand that the Shenzhen VBsemi of. Statement on whether the product is suitable for a particular application is non-binding. It is the customer's responsibility to verify specific product features in the products described in the specification is appropriate for use in a particular application. Parameter data sheets and technical specifications can be provided may vary depending on the application and performance over time. All operating parameters, including typical parameters must be made by customer's technical experts validated for each customer application. Product specifications do not expand or modify Shenzhen VBsemi purchasing terms and conditions, including but not limited to warranty herein.

Unless expressly stated in writing, Shenzhen VBsemi products are not intended for use in medical, life saving, or life sustaining applications or any other application. Wherein VBsemi product failure could lead to personal injury or death, use or sale of products used in Shenzhen VBsemi such applications using client did not express their own risk. Contact your authorized Shenzhen VBsemi people who are related to product design applications and other terms and conditions in writing.

The information provided in this document and the company's products without a license, express or implied, by estoppel or otherwise, to any intellectual property rights granted to the VBsemi act or document. Product names and trademarks referred to herein are trademarks of their respective representatives will be all.

Material Category Policy

Shenzhen VBsemi Electronics Co., Ltd., hereby certify that all of the products are determined to be RoHS compliant and meets the definition of restrictions under Directive of the European Parliament 2011/65 / EU, 2011 Nian. 6. 8 Ri Yue restrict the use of certain hazardous substances in electrical and electronic equipment (EEE) - modification, unless otherwise specified as inconsistent.(www.VBsemi.com)

Please note that some documents may still refer to Shenzhen VBsemi RoHS Directive 2002/95 / EC. We confirm that all products identified as consistent with the Directive 2002/95 / EC European Directive 2011/65 /.

Shenzhen VBsemi Electronics Co., Ltd. hereby certify that all of its products comply identified as halogen-free halogen-free standards required by the JEDEC JS709A. Please note that some Shenzhenese VBsemi documents still refer to the definition of IEC 61249-2-21, and we are sure that all products conform to confirm compliance with IEC 61249-2-21 standard level JS709A.