



N-Channel 60-V (D-S) MOSFETs

PRODUCT SUMMARY				
Part Number	V _{(BR)DSS} Min (V)	r _{DS(on)} Max (Ω)	V _{GS(th)} (V)	I _D Min (A)
VN10LLS	60	5 @ V _{GS} = 10 V	0.8 to 2.5	0.32
VN0605T		5 @ V _{GS} = 10 V	0.8 to 3.0	0.18
VN0610LL		5 @ V _{GS} = 10 V	0.8 to 2.5	0.28
VN2222LL		5 @ V _{GS} = 10 V	0.6 to 2.5	0.23

勝特力材料 886-3-5753170
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FEATURES

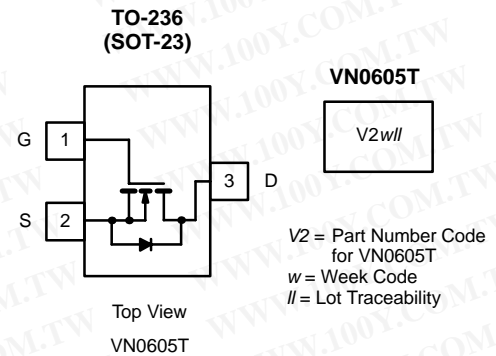
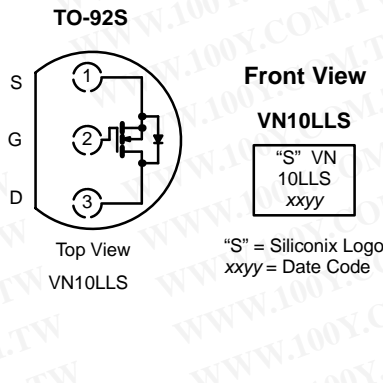
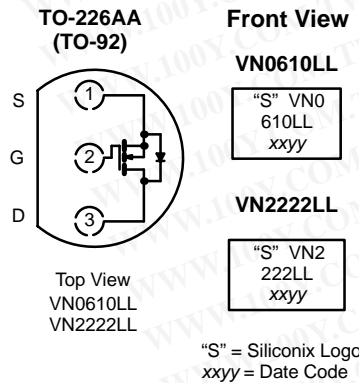
- Low On-Resistance: 2.5 Ω
- Low Threshold: <2.1 V
- Low Input Capacitance: 22 pF
- Fast Switching Speed: 7 ns
- Low Input and Output Leakage

BENEFITS

- Low Offset Voltage
- Low-Voltage Operation
- Easily Driven Without Buffering
- High-Speed Circuits
- Low Error Voltage

APPLICATIONS

- Direct Logic-Level Interface: TTL/CMOS
- Solid State Relays
- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories, Transistors, etc.
- Battery Operated Systems



ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	VN10LLS	VN0605T	VN0610LL	VN2222LL	Unit	
Drain-Source Voltage	V _{DS}	60	60	60	60	V	
Gate-Source Voltage—Non-Repetitive ^b	V _{GSM}	±30	±30	±30	±30		
Gate-Source Voltage—Continuous	V _{GS}	±20	±20	±20	±20		
Continuous Drain Current (T _J = 150°C)	T _A = 25°C	I _D	0.32	0.18	0.28	A	
	T _A = 100°C		0.2	0.11	0.14		
Pulsed Drain Current ^a	I _{DM}		1.4	0.72	1.3	1.0	
Power Dissipation	T _A = 25°C	P _D	0.9	0.36	0.8	W	
	T _A = 100°C		0.4	0.14	0.32		0.32
Thermal Resistance, Junction-to-Ambient	R _{thJA}		139	350	156	156	°C/W
Operating Junction and Storage Temperature Range	T _J , T _{stg}		-55 to 150			°C	

Notes
 a. Pulse width limited by maximum junction temperature.
 b. t_p ≤ 50 μs.



SPECIFICATIONS (T _A = 25 °C UNLESS OTHERWISE NOTED)										
Parameter	Symbol	Test Conditions	Typ ^a	Limits						Unit
				VN10LLS VN0610LL		VN0605T		VN2222LL		
				Min	Max	Min	Max	Min	Max	
Static										
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 100 μA	70	60				60		V
		V _{GS} = 0 V, I _D = 10 μA	70			60				
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 1 mA	2.1	0.8	2.5	0.8	3.0	0.6	2.5	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V					±100		±100	nA
		T _J = 125 °C					±500			
Zero Gate-Voltage Drain Current	I _{DSS}	V _{DS} = 50 V, V _{GS} = 0 V			10		1.0			μA
		T _J = 125 °C			500		500			
On-State Drain Current ^b	I _{D(on)}	V _{DS} = 10 V, V _{GS} = 10 V	1000	750		500		750		mA
		V _{GS} = 4.5 V, I _D = 50 mA	4.5				7.5			
Drain-Source On-Resistance ^b	r _{DS(on)}	V _{GS} = 5 V, I _D = 0.2 A	4.5		7.5				7.5	Ω
		V _{GS} = 10 V, I _D = 0.5 A	2.4		5		5		7.5	
		T _J = 125 °C	4.4		9		10		13.5	
Forward Transconductance ^b	g _{fs}	V _{DS} = 10 V, I _D = 0.5 A	230	100				100		mS
		V _{DS} = 10 V, I _D = 0.2 A	180			80				
Common Source Output Conductance ^b	g _{os}	V _{DS} = 5 V, I _D = 50 mA	500							μs
Dynamic										
Input Capacitance	C _{iss}	V _{DS} = 25 V, V _{GS} = 0 V f = 1 MHz	22		60		60		60	pF
Output Capacitance	C _{oss}		11		25		25		25	
Reverse Transfer Capacitance	C _{rss}		2		5		5		5	
Switching^c										
Turn-On Time	t _{ON}	V _{DD} = 15 V, R _L = 23 Ω, I _D ≅ 0.6 A V _{GEN} = 10 V, R _G = 25 Ω	7		10				10	ns
Turn-Off Time	t _{OFF}		7		10				10	
Turn-On Time	t _{ON}	V _{DD} = 30 V, R _L = 150 Ω, I _D ≅ 0.2 A V _{GEN} = 10 V, R _G = 25 Ω	7				20			
Turn-Off Time	t _{OFF}		11				20			

Notes

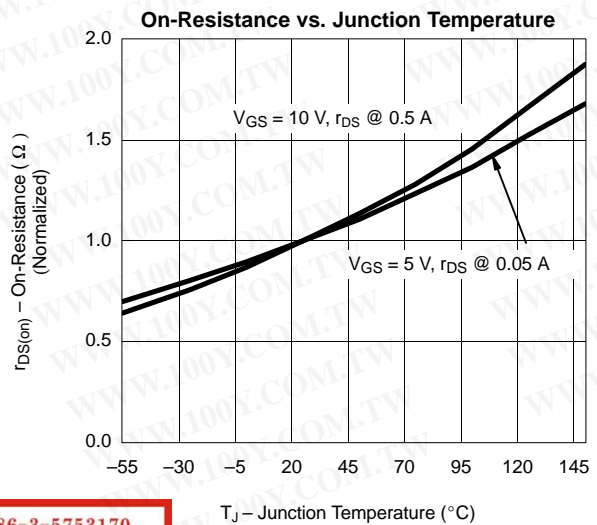
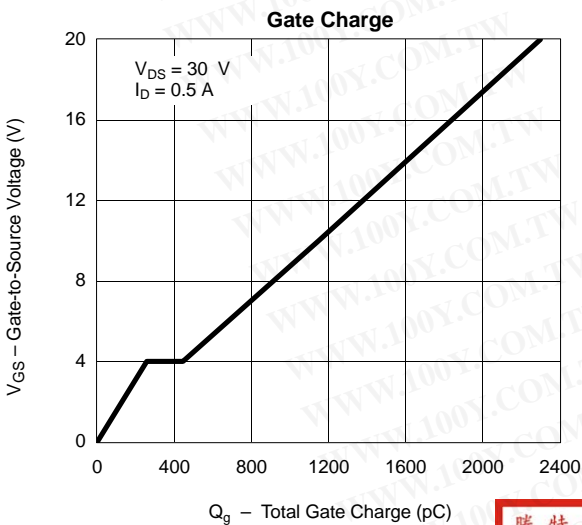
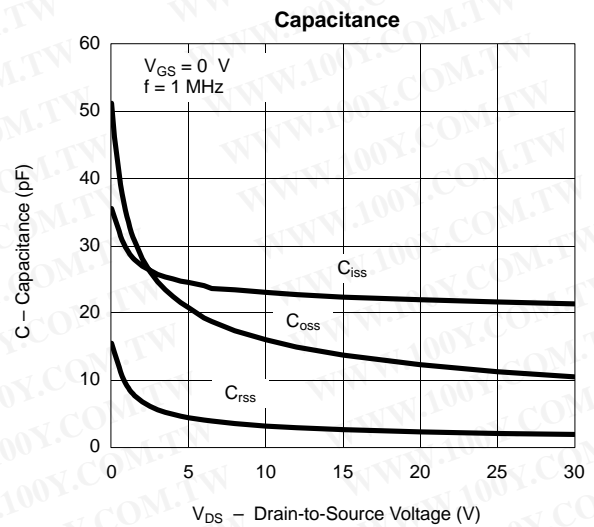
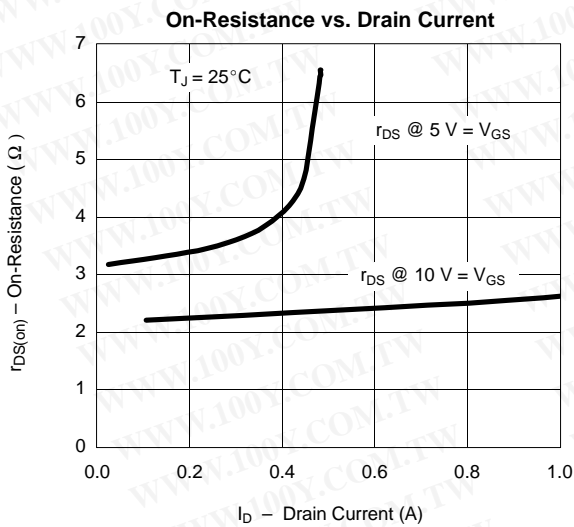
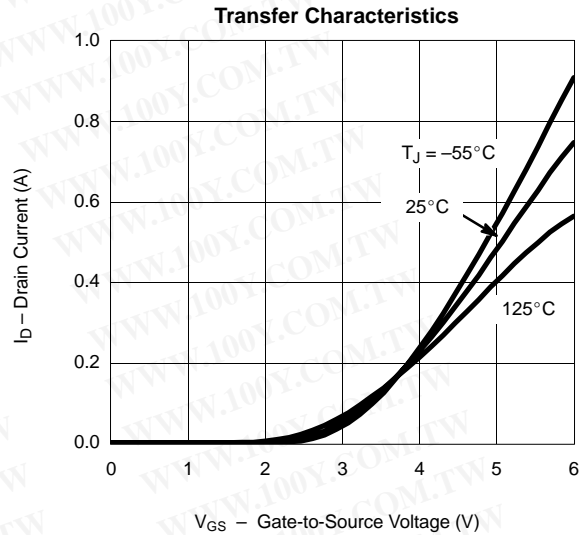
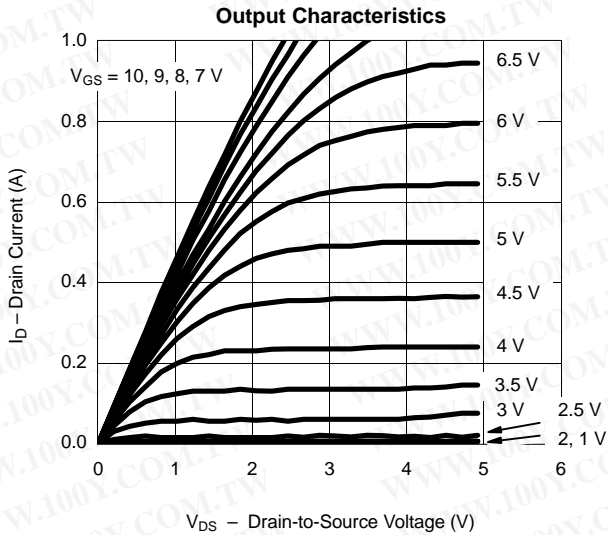
- a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- b. Pulse test: PW ≤ 300 μs duty cycle ≤ 3%.
- c. Switching time is essentially independent of operating temperature.

VNBF06

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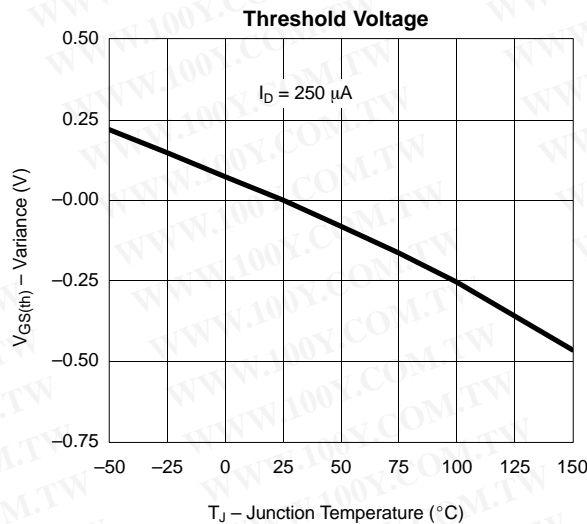
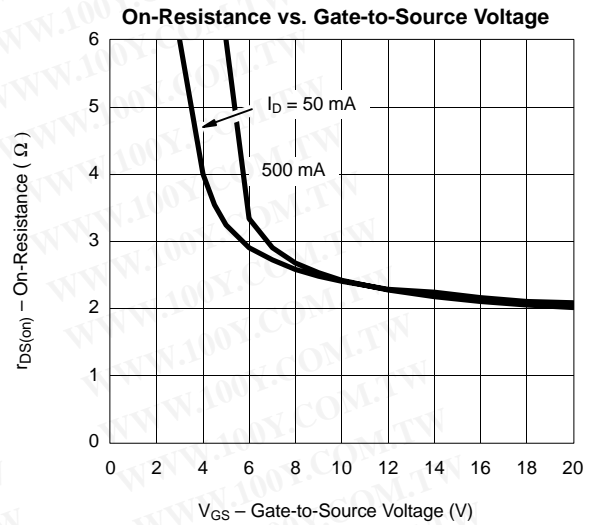
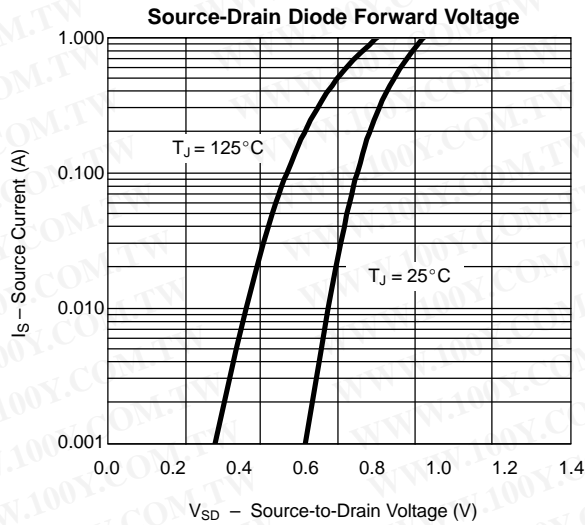


TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)



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