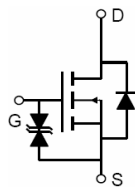


N-Channel Enhancement Mode Power MOSFET

Description This Product uses advanced trench technology MOSFETs to provide excellent $R_{DS(ON)}$ and low gate charge. The complementary MOSFETs may be used to form a level shifted high side switch, and for a host of other applications.		 Schematic diagram	
General Features • V_{DS} 200V • I_D (at $V_{GS} = 10V$) 1.7A • $R_{DS(ON)}$ (at $V_{GS} = 10V$) $< 1.5\Omega$ • $R_{DS(ON)}$ (at $V_{GS} = 4.5V$) $< 1.7\Omega$ • 100% Avalanche Tested • RoHS Compliant • ESD (HBM)$>5.0KV$		 TO-92	
Application • Power switch • DC/DC converters			
Device	Package	Marking	Packaging
G01N20RE	TO-92	G01N20	1000pcs/Carton

Absolute Maximum Ratings $T_C = 25^\circ C$, unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	200	V
Continuous Drain Current	I_D	1.7	A
Pulsed Drain Current (note1)	I_{DM}	6.8	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	P_D	3	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 To 150	$^\circ C$

Thermal Resistance

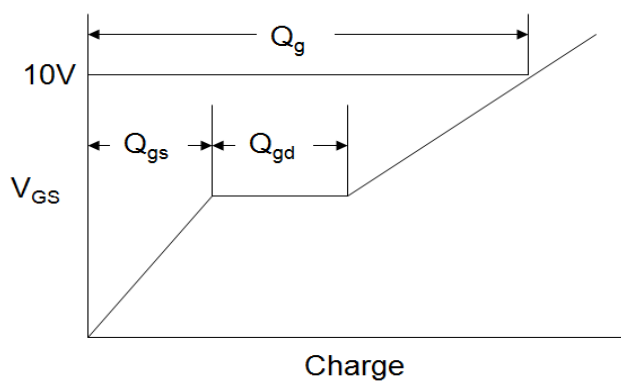
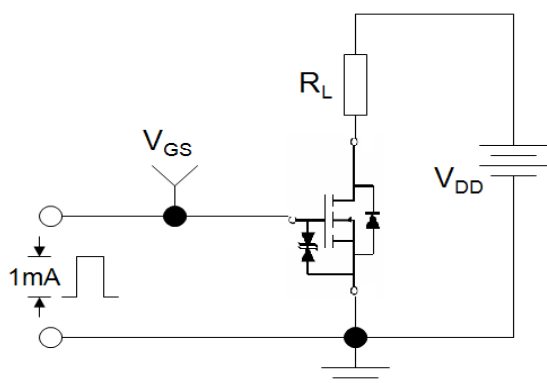
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Ambient	R_{thJA}	42	$^\circ C/W$

Specifications T _j = 25°C, unless otherwise noted						
Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static Parameters						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	200	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 200V, V _{GS} = 0V	--	--	1	uA
Gate-Source Leakage	I _{GSS}	V _{GS} = ±20V	--	--	±30	uA
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.8	2	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 1A	--	0.87	1.5	Ω
		V _{GS} = 4.5V, I _D = 1A	--	0.9	1.7	
Forward Transconductance	g _{FS}	V _{DS} =15V,I _D =1.7A	--	8	--	S
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 25V, f = 1.0MHz	--	580	--	pF
Output Capacitance	C _{oss}		--	90	--	
Reverse Transfer Capacitance	C _{rss}		--	30	--	
Total Gate Charge	Q _g	V _{DD} = 100V, I _D = 1.7A, V _{GS} = 10V	--	12	--	nC
Gate-Source Charge	Q _{gs}		--	2.5	--	
Gate-Drain Charge	Q _{gd}		--	3.8	--	
Turn-on Delay Time	t _{d(on)}	V _{DD} = 100V, I _D = 1.7A, R _G = 2.5Ω	--	10	--	ns
Turn-on Rise Time	t _r		--	12	--	
Turn-off Delay Time	t _{d(off)}		--	15	--	
Turn-off Fall Time	t _f		--	15	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I _S	T _C = 25°C	--	--	1.7	A
Body Diode Voltage	V _{SD}	T _J = 25°C, I _{SD} = 1.7A, V _{GS} = 0V	--	--	1.2	V

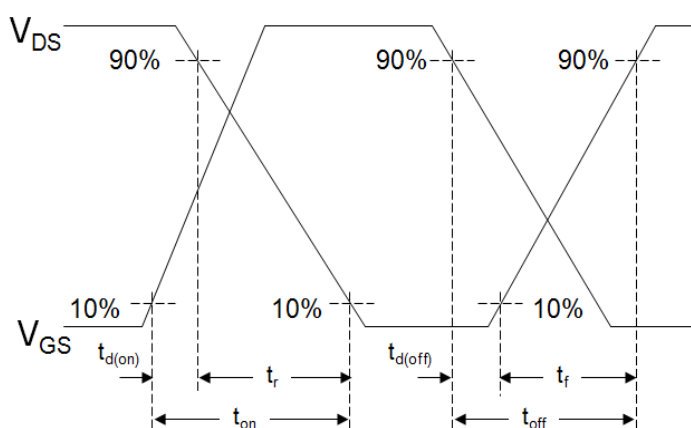
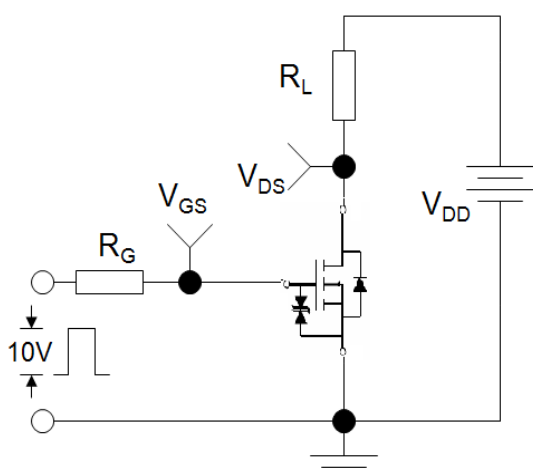
Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Identical low side and high side switch with identical R_G

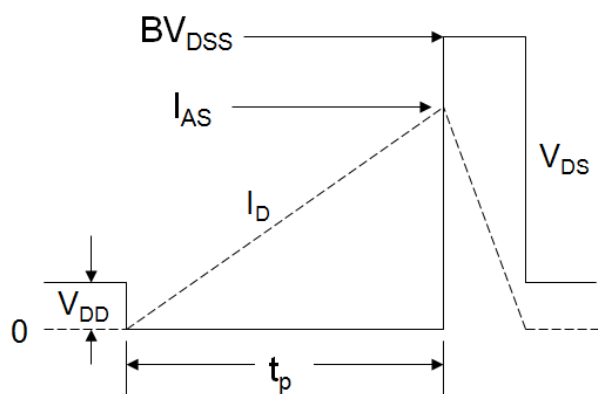
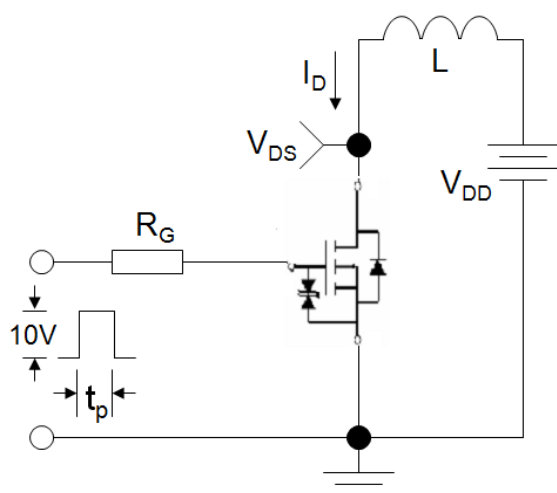
Gate Charge Test Circuit



EAS Test Circuit



Switch Time Test Circuit



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 1. Output Characteristics

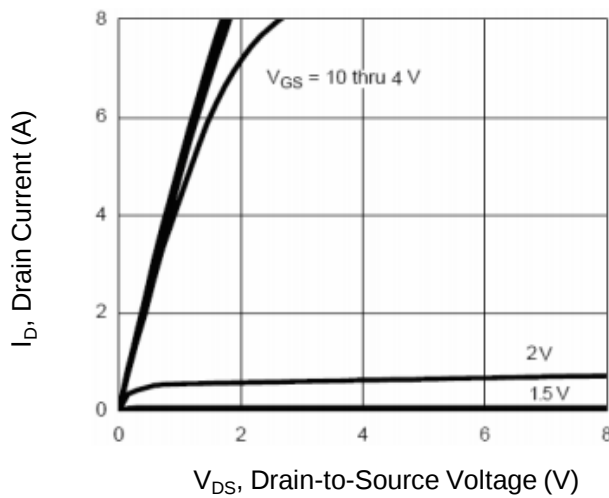


Figure 2. Transfer Characteristics

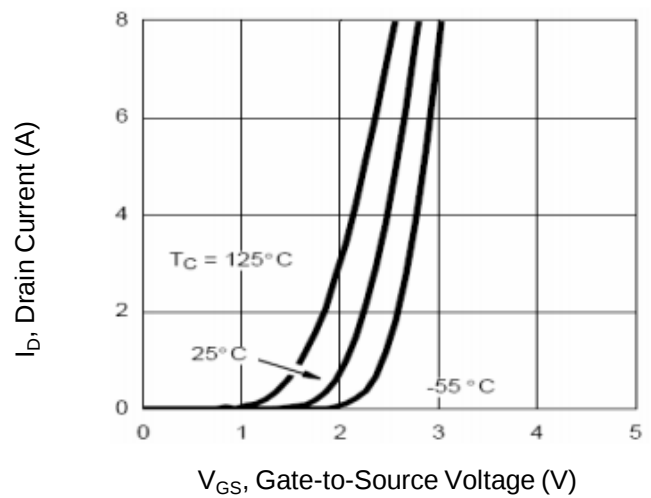


Figure 3. Drain Source On Resistance

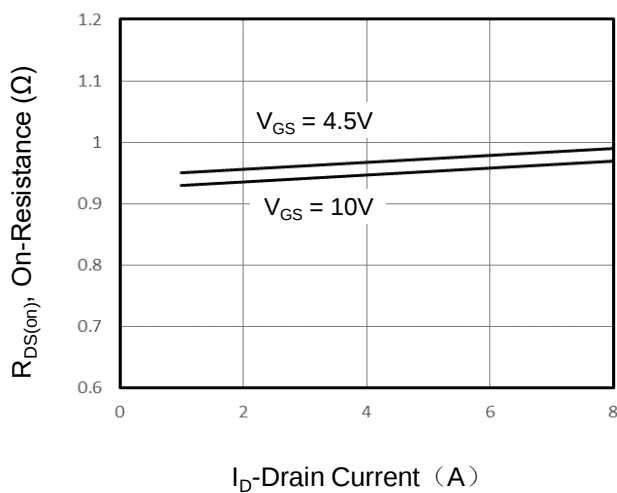


Figure 4. Gate Charge

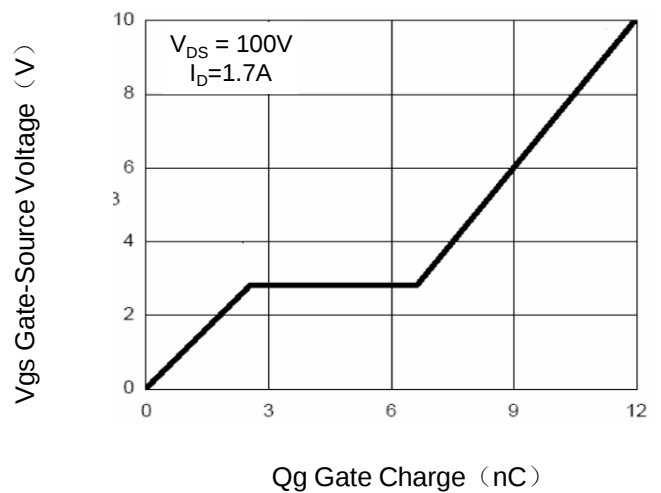


Figure 5. Capacitance vs Vds

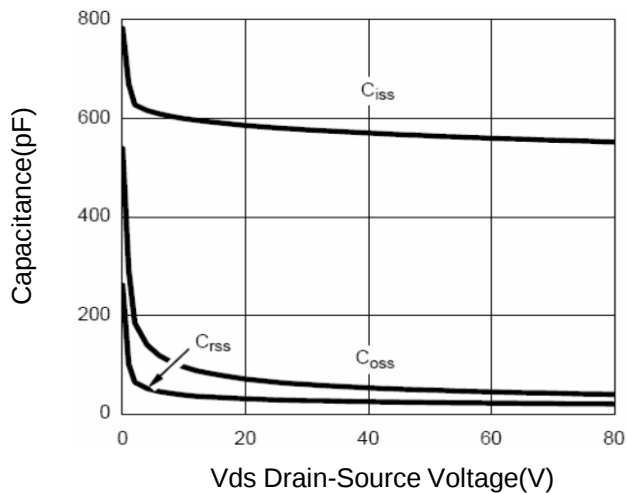
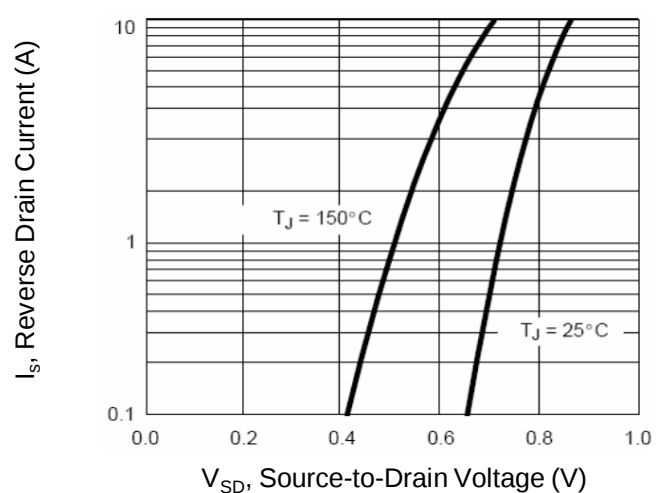


Figure 6. Source-Drain Diode Forward



Typical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted

Figure 7. Drain-Source On-Resistance

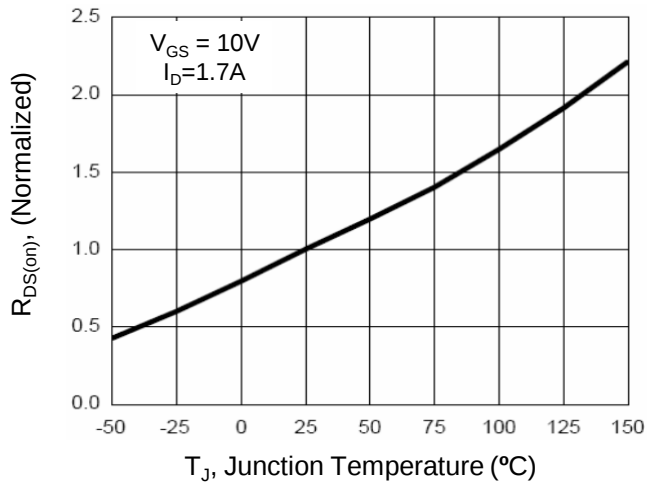


Figure 8. Safe Operation Area

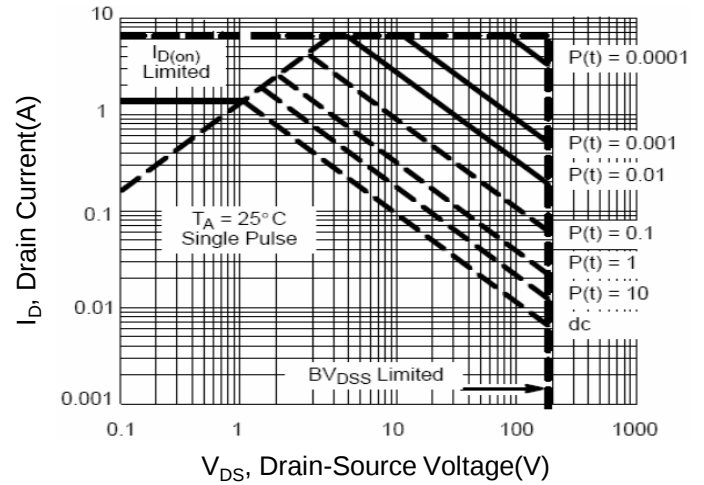
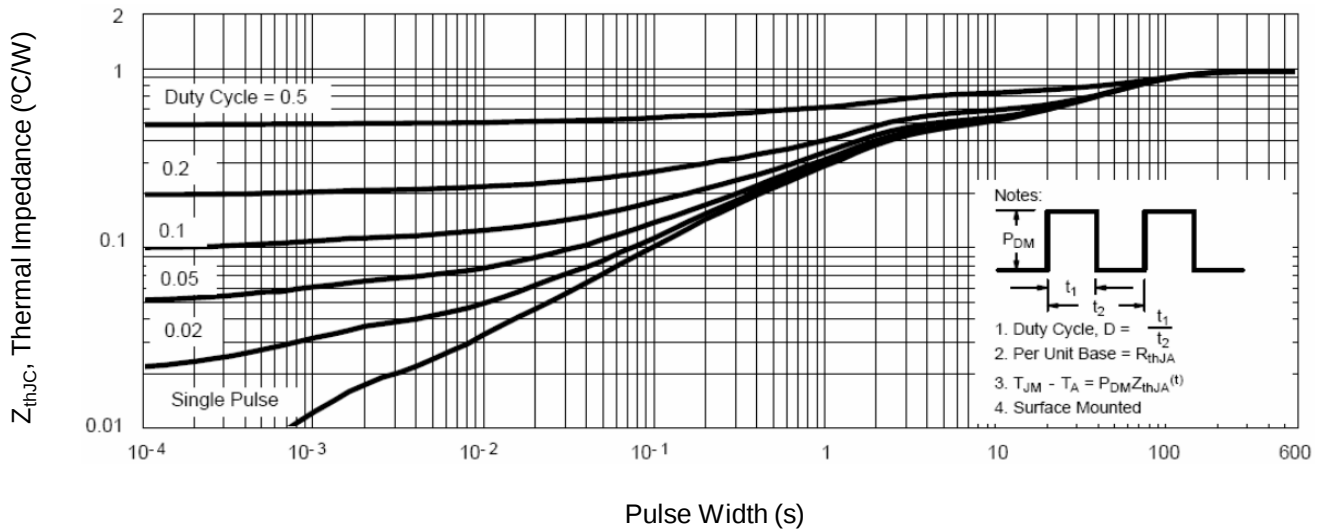
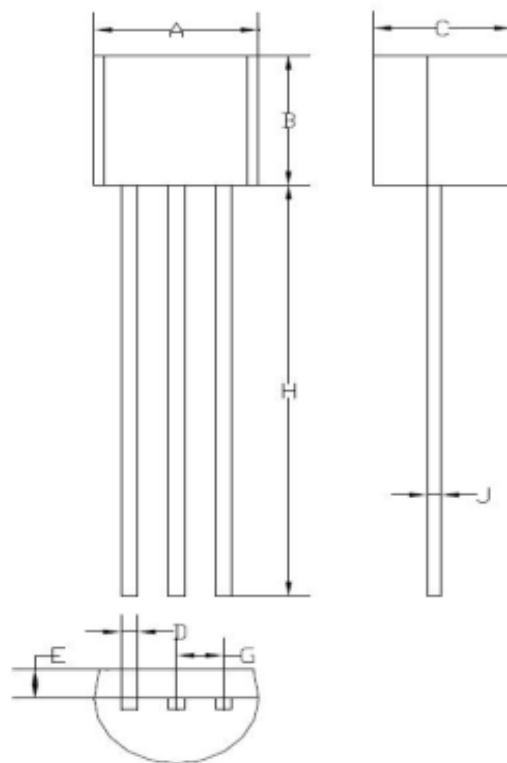


Figure 9. Normalized Maximum Transient Thermal Impedance



TO-92 Package Information



Symbol	Dimensions in Millimeters		
	MIN.	NOM.	MAX.
A	4.59	4.60	--
B	4.58	4.60	4.62
C	3.50	3.55	3.60
D	2.50	2.55	2.60
E	--	1.25	1.30
G	1.24	1.27	1.30
H	14.28	14.30	14.32
J	0.38		
All Dimensions in mm			