MPVA20N65B

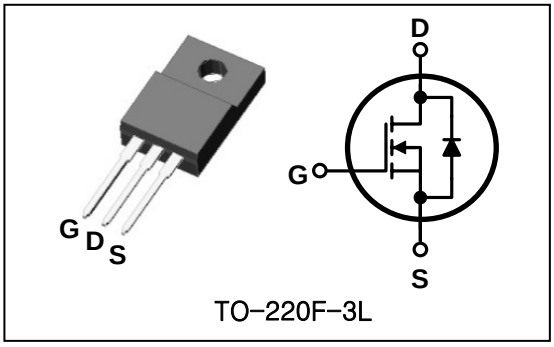
Power MOSFET

SWITCHING REGULATOR APPLICATIONS

Features

- High Voltage: BV_{DSS}=650V(Min.)
- Low C_{rss} : C_{rss}=20pF(Typ.)
- Low gate charge : Qg=60nC(Typ.)
- Low $R_{DS(on)}$:$R_{DS(on)}$=0.4Ω(Max.)

PIN Connection



TO-220F-3L

Ordering Information

Type NO.	Marking	Package Code
MPVA20N65B	MPVA20N65B	TO-220F-3L

Absolute Maximum Ratings T_C = 25ºC, unless otherwise noted

Parameter	Symbol	Value	Unit
		TO-220F	
Drain-Source Voltage (V_{GS} = 0V)	V_{DSS}	650	V
Continuous Drain Current	I_D	20	A
Pulsed Drain Current (note1)	I_{DM}	80	A
Gate-Source Voltage	V_{GSS}	±30	V
Single Pulse Avalanche Energy (note2)	E_{AS}	1500	mJ
Avalanche Current (note1)	I_{AR}	17	A
Repetitive Avalanche Energy (note1)	E_{AR}	90	mJ
Power Dissipation (T_C = 25ºC)	P_D	120	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	ºC

Thermal Resistance

Parameter	Symbol	Value	Unit
		TO-220F	
Thermal Resistance, Junction-to-Case	R_{thJC}	1.04	ºC/W
Thermal Resistance, Junction-to-Ambient	R_{thJA}	62.5	

Specifications T_J = 25ºC, unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	650	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 650V, V_{GS} = 0V, T_J = 25ºC	--	--	1	μA
Gate-Source Leakage	I_{GSS}	V_{GS} = ±30V	--	--	±80	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2.0	--	4.0	V
Drain-Source On-Resistance (Note3)	$R_{DS(on)}$	V_{GS} = 10V, I_D = 10A	--	0.35	0.4	Ω
Dynamic						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1.0MHz	--	3000	--	pF
Output Capacitance	C_{oss}		--	250	--	
Reverse Transfer Capacitance	C_{rss}		--	20	--	
Total Gate Charge	Q_g	V_{DD} = 520V, I_D = 20A, V_{GS} = 10V	--	60	--	nC
Gate-Source Charge	Q_{gs}		--	14	--	
Gate-Drain Charge	Q_{gd}		--	23	--	
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 325V, I_D = 20A, R_G = 25 Ω	--	37	--	ns
Turn-on Rise Time	t_r		--	66	--	
Turn-off Delay Time	$t_{d(off)}$		--	175	--	
Turn-off Fall Time	t_f		--	84	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C = 25 ºC	--	--	20	A
Pulsed Diode Forward Current	I_{SM}		--	--	80	
Body Diode Voltage	V_{SD}	T_J = 25ºC, I_{SD} = 20A, V_{GS} = 0V	--	--	1.4	V
Reverse Recovery Time	t_{rr}	V_{GS} = 0V,I_S = 20A, di_F/dt =100A /μs	--	450	--	ns
Reverse Recovery Charge	Q_{rr}		--	7.1	--	μC

Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. I_{AS} = 17A, V_{DD} = 50V, R_G = 25 Ω, Starting T_J = 25 ºC
3. Pulse Test: Pulse width ≤ 350μs, Duty Cycle ≤ 1%

Typical Characteristics T_J = 25ºC, unless otherwise noted

Figure 1. Output Characteristics (T_J = 25ºC)

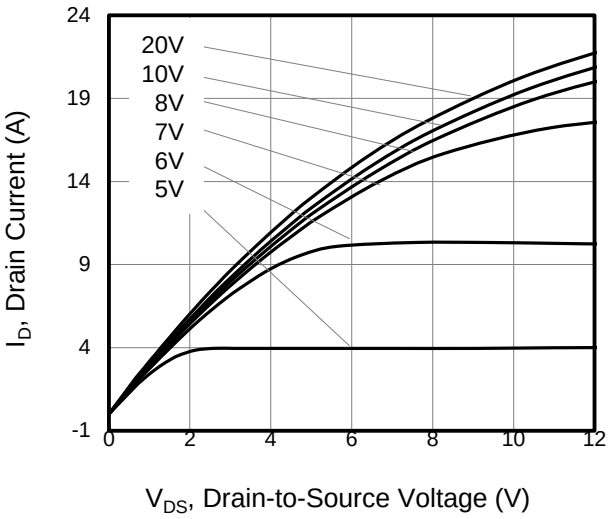


Figure 2. Body Diode Forward Voltage

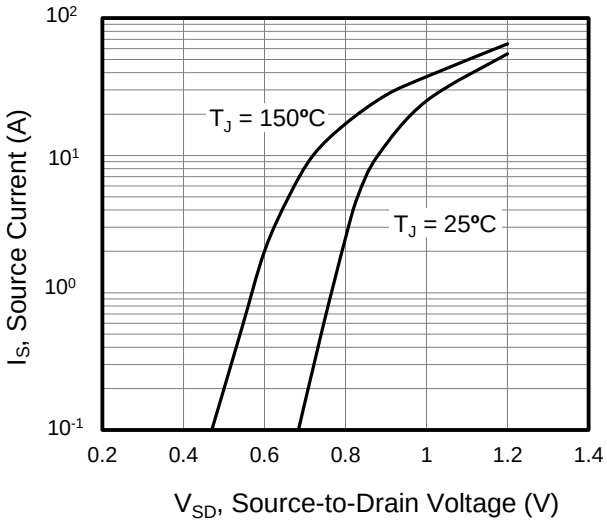


Figure 3. Drain Current vs. Temperature

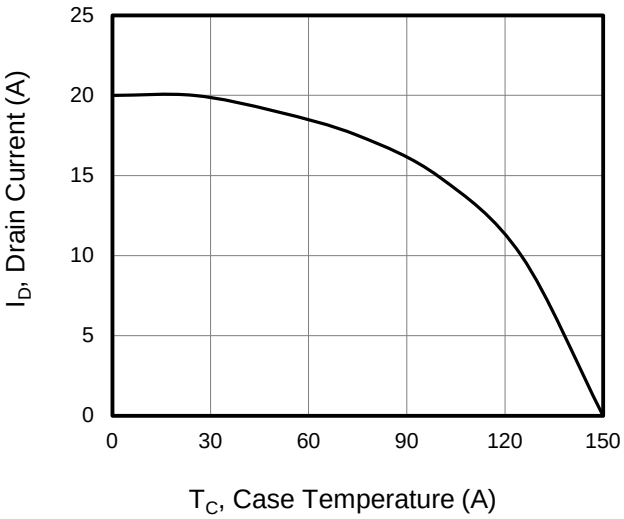


Figure 4. BV_{DSS} Variation vs. Temperature

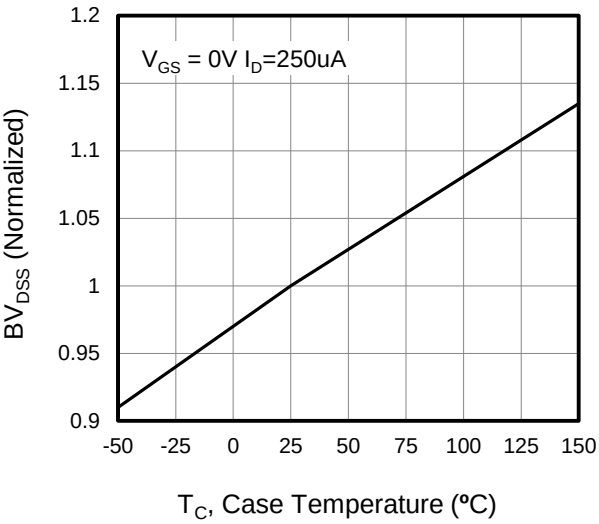


Figure 5. Transfer Characteristics

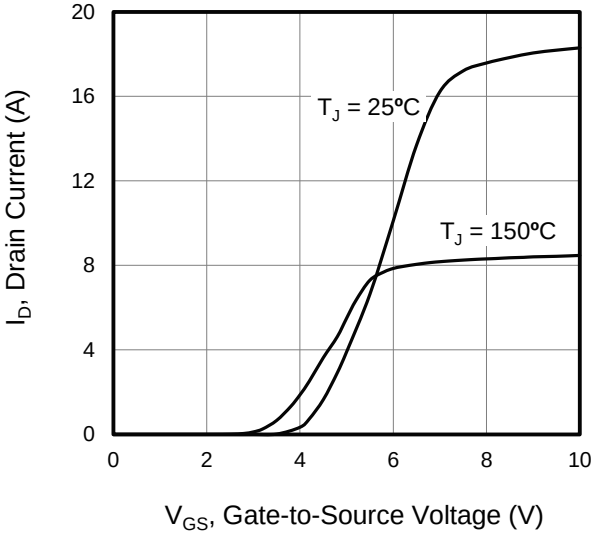
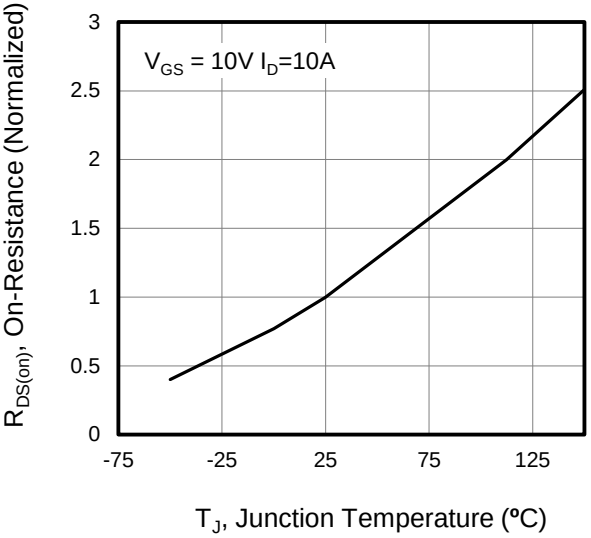


Figure 6. On-Resistance vs. Temperature



Typical Characteristics T_J = 25ºC, unless otherwise noted

Fig 7. Capacitance

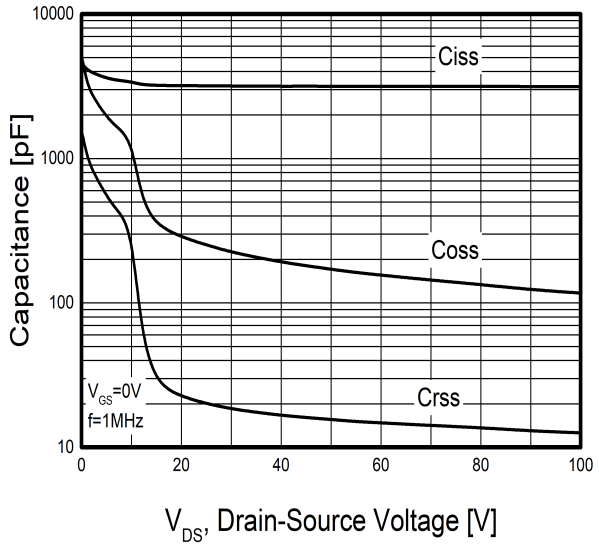


Figure 8. Gate Charge

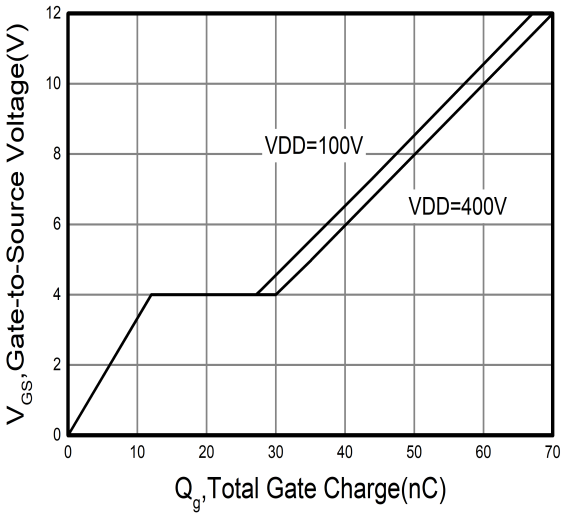


Figure 9. Transient Thermal Impedance

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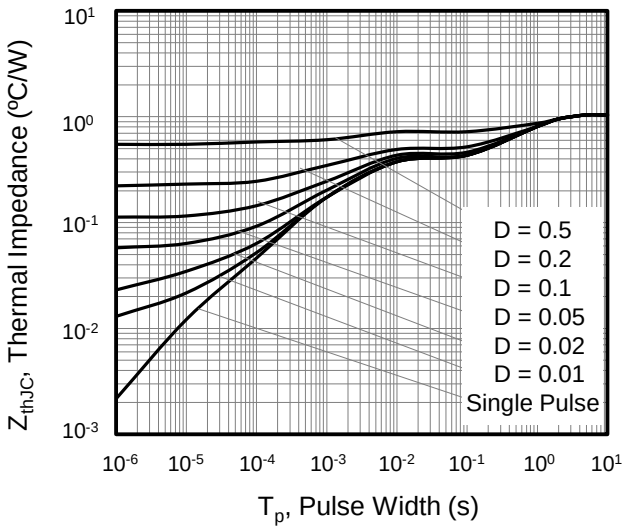


Figure A：Gate Charge Test Circuit and Waveform

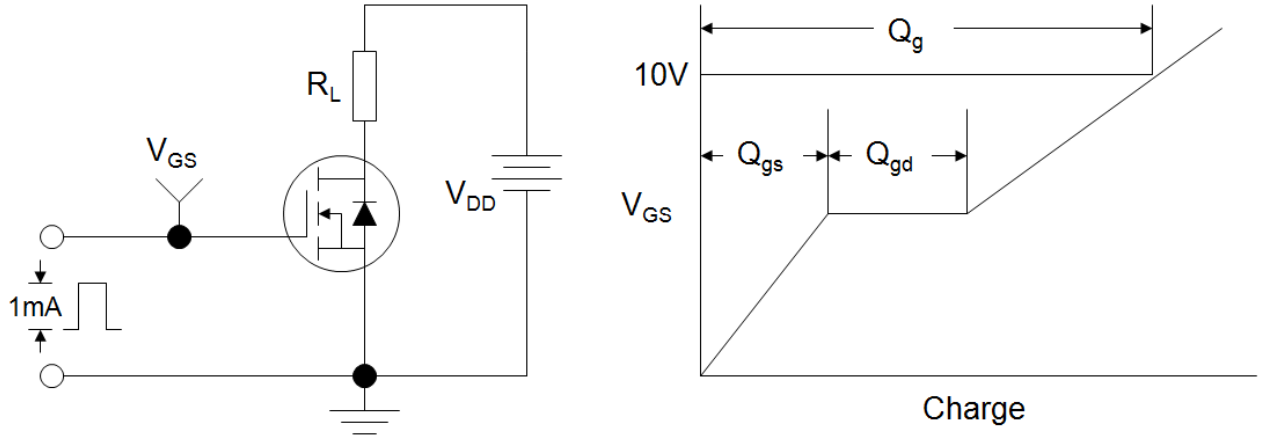


Figure B：Resistive Switching Test Circuit and Waveform

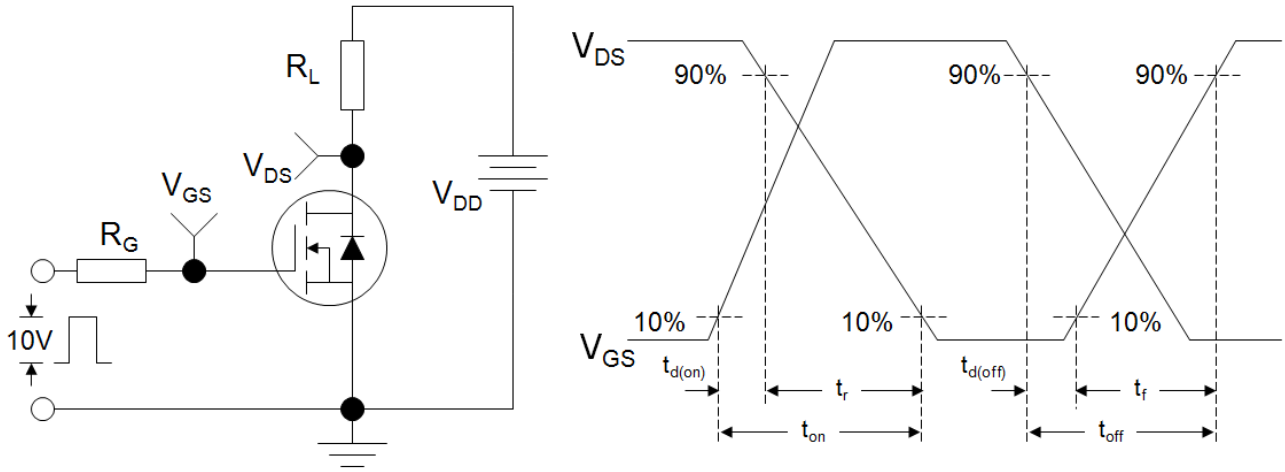
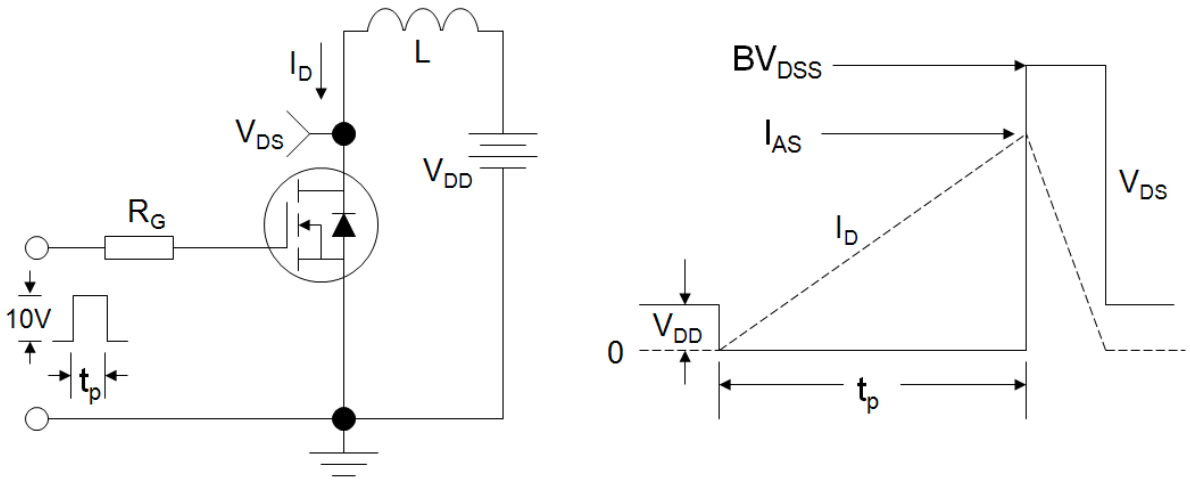


Figure C：Unclamped Inductive Switching Test Circuit and Waveform



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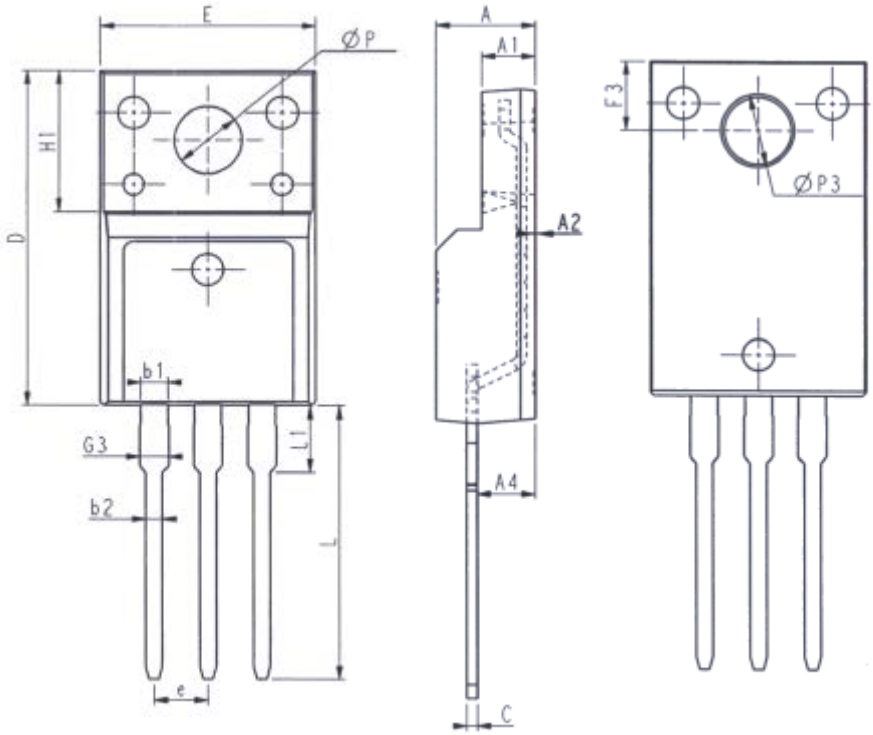

Unit: mm		
Symbol	Min.	Max.
E	9.96	10.36
A	4.50	4.90
A1	2.34	2.74
A2	0.30	0.60
A4	2.56	2.96
c	0.40	0.65
D	15.57	16.17
H1	6.70REF	
e	2.54BSC	

Unit: mm		
Symbol	Min.	Max.
L	12.68	13.28
L1	2.93	3.13
P	3.03	3.38
P3	3.15	3.65
F3	3.15	3.45
G3	1.25	1.55
b1	1.18	1.43
b2	0.70	0.95

单击下面可查看定价，库存，交付和生命周期等信息

>>芯长征