650V N沟道增强型功率场效应管

650V N-CHANNEL ENHANCEMENT MODE POWER MOSFET

7A/650V

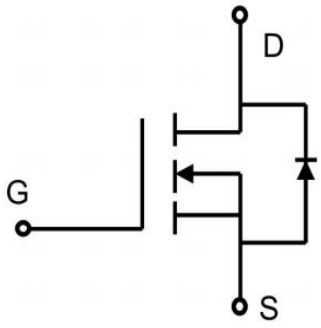
Discription

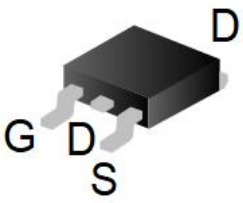
JXM7N65D This N-Channel enhancement mode power MOSFET is produced using DP MOS technology. It achieves low conduction loss and switching losses.It leads the design engineers to their power converters with high efficiency, high power density, and superior thermal behavior. Furthermore, it's universal applicable.For example, it is suitable for hard and soft switching topologies, lights, adapters, etc..

Features

- V_{DS}=650V, I_D=7A
- $R_{DS(on)}$（typ.）=0.55Ω@V_{GS}=10V
- New revolutionary high voltage technology
- Ultra low gate charge
- High peak current capability

100% UIS TESTED!
100% ΔVds TESTED!





TO-252

Applications

- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)

Note

- Products made by JUXIN semiconductor

ORDERING INFORMATION

Part No.	Package	Marking	Material	Packing
JXM7N65D	TO-252	JXM7N65D	Pb free	Tape and Reel

ABSOLUTE MAXIMUM RATINGS（T_J=25℃ unless otherwise noted）

Characteristics		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	650	V
Gate-Source Voltage		V_{GS}	±30	V
Continuous Drain Current	T_C=25℃	I_D	7.0	A
	T_C=100°C		4.4	
Drain Current Pulsed(Note 1)		I_{DM}	28	A
Power Dissipation（TC=25℃）		PD	60	W
-Derate above 25°C			0.48	W/℃
Single Pulsed Avalanche Energy (Note 2)		E_{AS}	261	mJ
Reverse Diode dv/dt, V_{DS}≤400V(Note 3)		dv/dt	15	V/ns
Drain Source Voltage Slope, V_{DS}≤480V		dVds/dt	50	V/ns
Operation Junction Temperature Range		T_J	-55 to+150	℃
Storage Temperature Range		T_{STG}	-55 to+150	℃

THERMAL CHARACTERISTICS

Characteristics	Symbol	MAX	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.08	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62	°C/W

ELECTRICAL CHARACTERISTICS

Off Characteristics

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Drain -Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250uA	650	--	--	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=650V， V_{GS}=0V	--	--	1.0	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=+30V,V_{DS}=0V	--	--	100	nA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=-30V,V_{DS}=0V	--	--	-100	nA

On Characteristics

Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250uA	2.0	--	4.0	V
Static Drain- Source On State Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=3.5A	--	0.55	0.64	Ω

Dynamic Characteristics

Input Capacitance	C_{iss}	V_{DS}=100V, V_{GS}=0V, f=1MHz	--	423	--	pF
Output Capacitance	C_{0ss}		--	27	--	
Reverse Transfer Capacitance	C_{rss}		--	1.9	--	

Switching Characteristics

Turn-on Delay Time	$t_{d(on)}$	V_{DD}=325V, V_{GS}=10V, R_G=24Ω I_D=7A (Note 4,5)	--	10	--	ns
Turn-on Rise Time	t_r		--	29	--	
Turn-off Delay Time	$t_{d(off)}$		--	44	--	
Turn-off Fall Time	t_f		--	26	--	
Total Gate Charge	Q_g	VDD=520V, VGS=0 to 10V, ID=7A (Note 4,5)	--	16	--	nC
Gate-Source Charge	Q_{gs}		--	3.6	--	
Gate-Drain Charge	Q_{gd}		--	8.3	--	

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Continuous Source Current	I_S	Integral Reverse P-N Junction Diode in the MOSFET	--	--	7	A
Pulsed Source Current	I_{SM}		--	--	28	
Diode Forward Voltage	V_{SD}	I_S=7A, V_{GS}=0V	--	--	1.4	V
Reverse Recovery Time	Trr	I=7A,V_{GS}=0V, dIF/dt=100A/μS	--	346	--	ns
Reverse Recovery Charge	Qrr		--	2.5	--	μC

注：

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. E_{AS} condition: Starting T_J=25℃, V_{DD}=100V, V_G=10V, R_G=25ohm, L=79mH, I_{AS}=2.4A.
3. I_{SD}≤I_D, di/dt ≤ 200A/us, V_{DD} ≤ BV_{DSS}, Starting T_J =25℃.
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.
5. Essentially Independent of Operating Temperature Typical Characteristics.

典型特性曲线

Fig.1: Output Characteristics

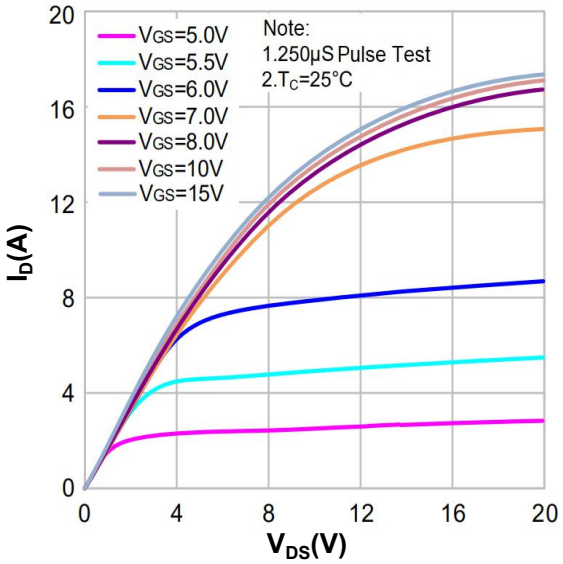


Fig.2: Typical Transfer Characteristics

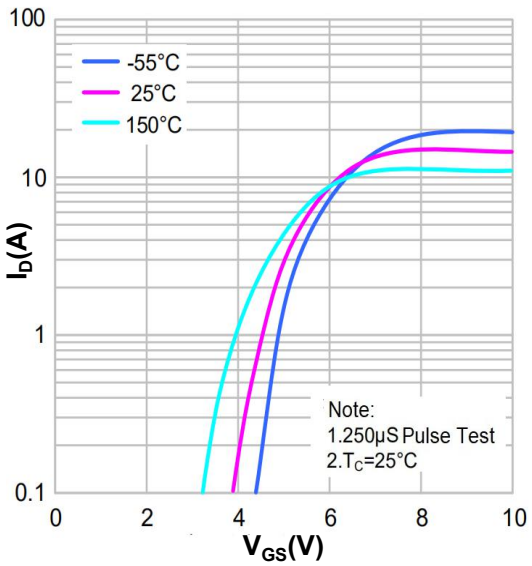


Fig.3: Typical On-resistance vs. Drain Current

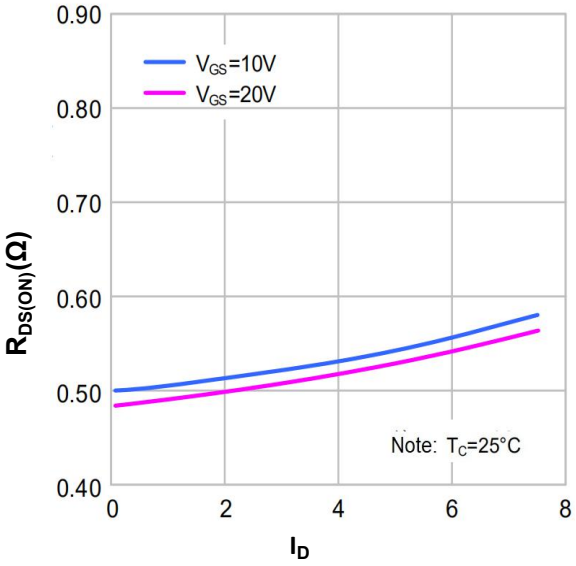


Fig.4: Typical Body Diode Forward Voltage

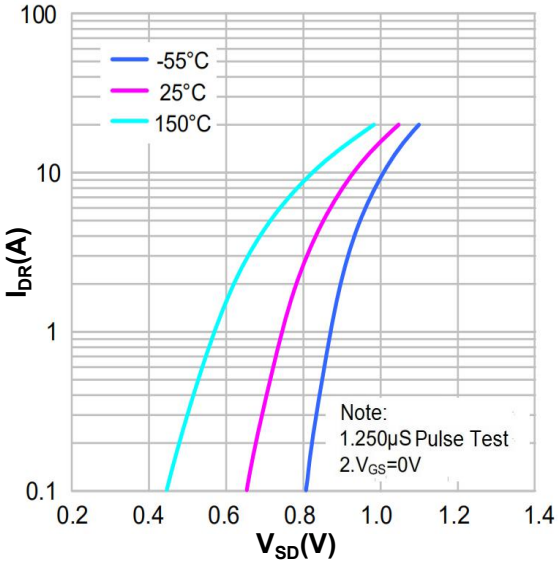


Fig.5: Typical Capacitance Characteristics

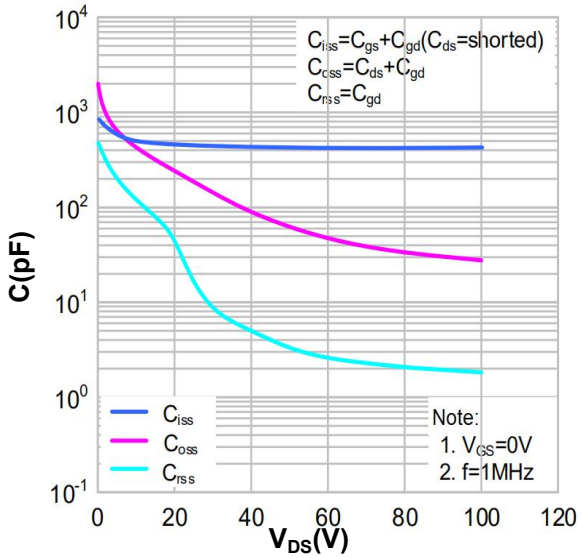
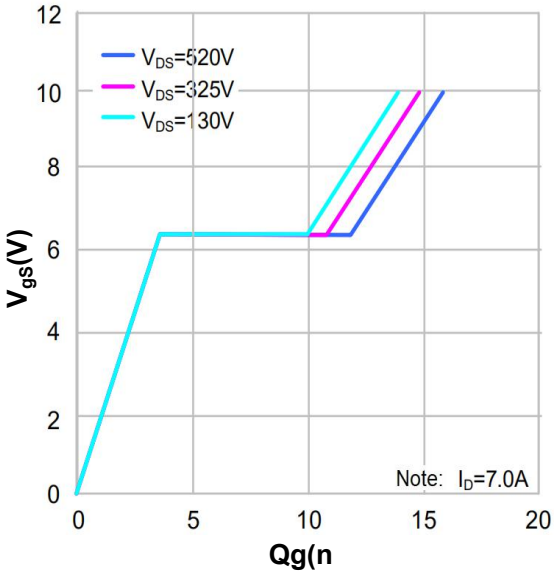


Fig.6: Typical Gate Charge Characteristics



The curve above is for reference only.

典型特性曲线

Fig.7: Nomalized Breakdown Volatge vs. Juction Temperature

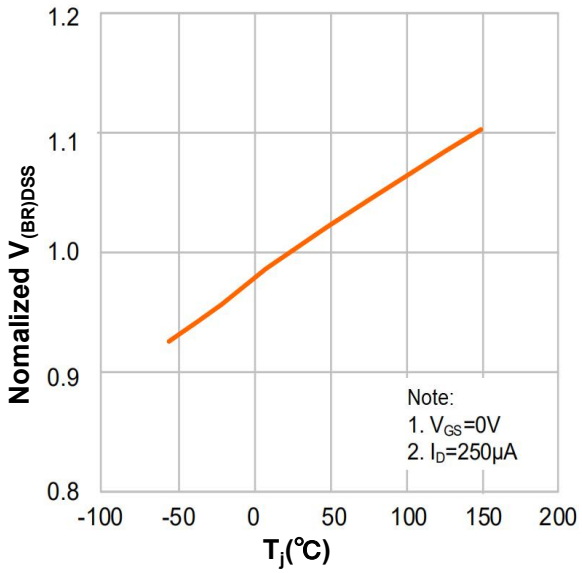


Fig.8: Nomalized on Resistance vs. Juction Temperature

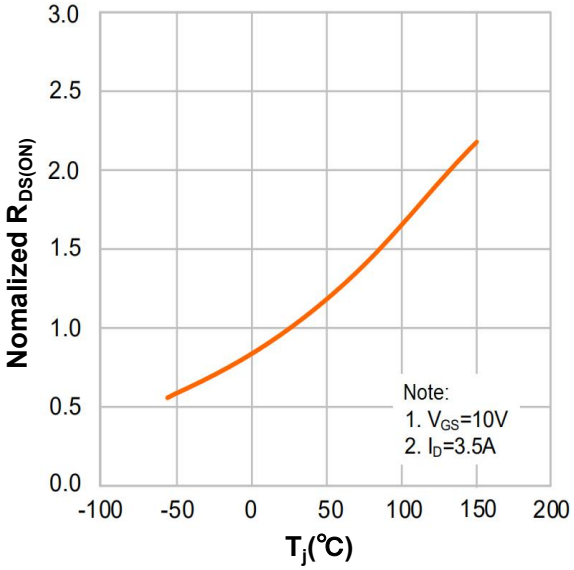
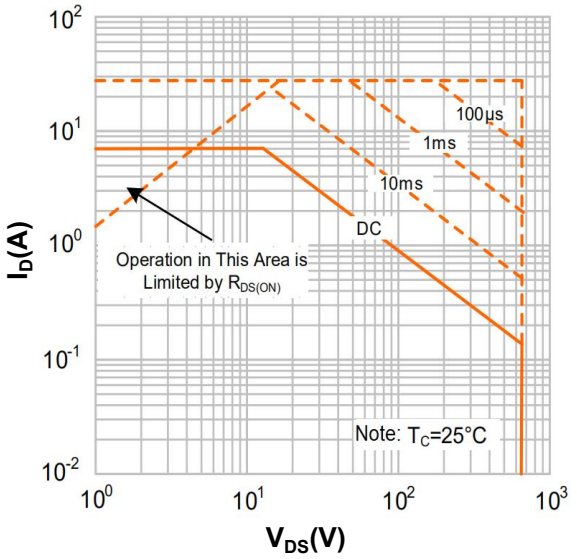


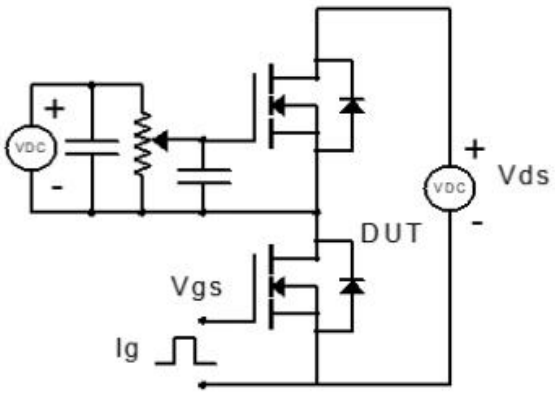
Fig.9: Maximum Safe Operating Area

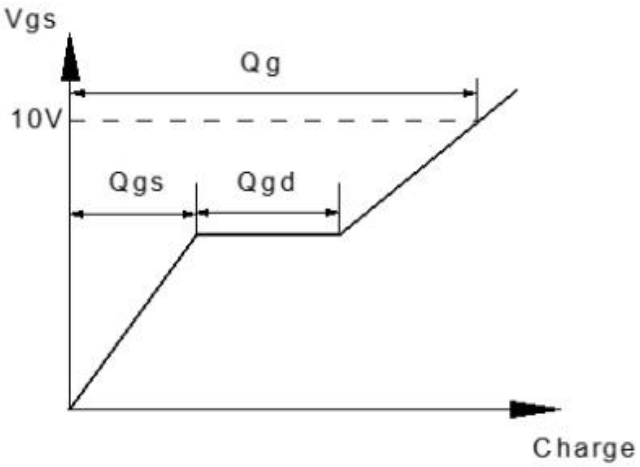


The curve above is for reference only.

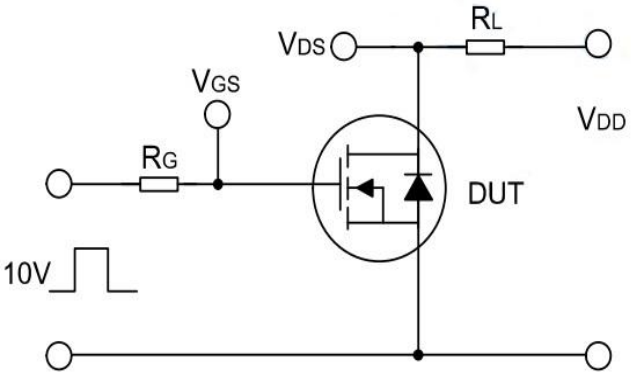
Test Circuit

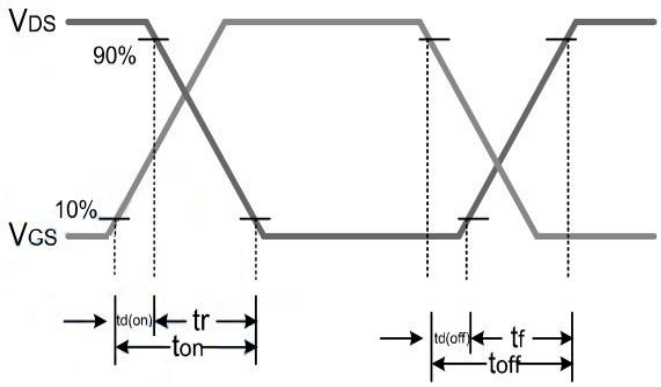
Gate Charge Test Circuit & Waveform



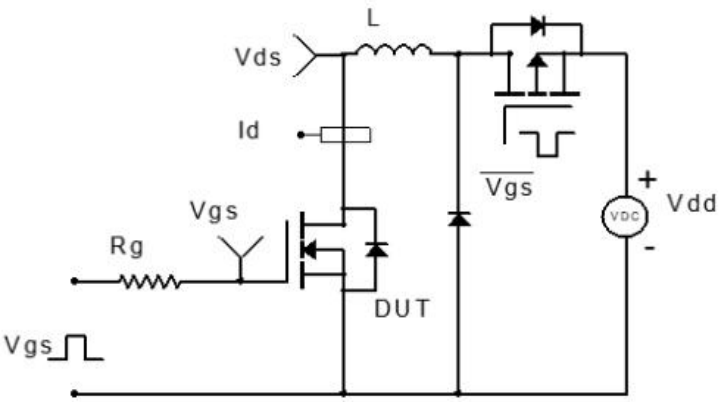


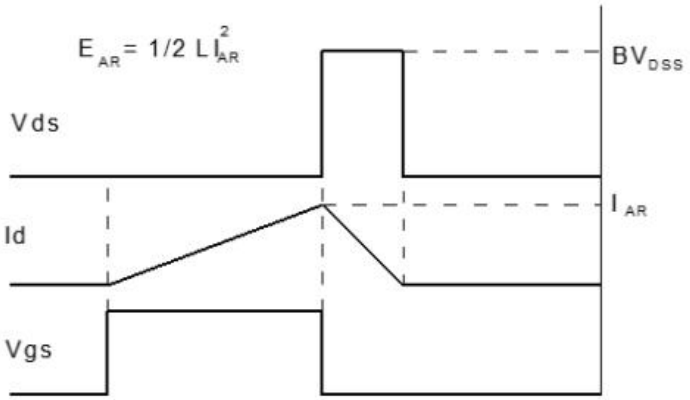
Resistive Switching Test Circuit & Waveform





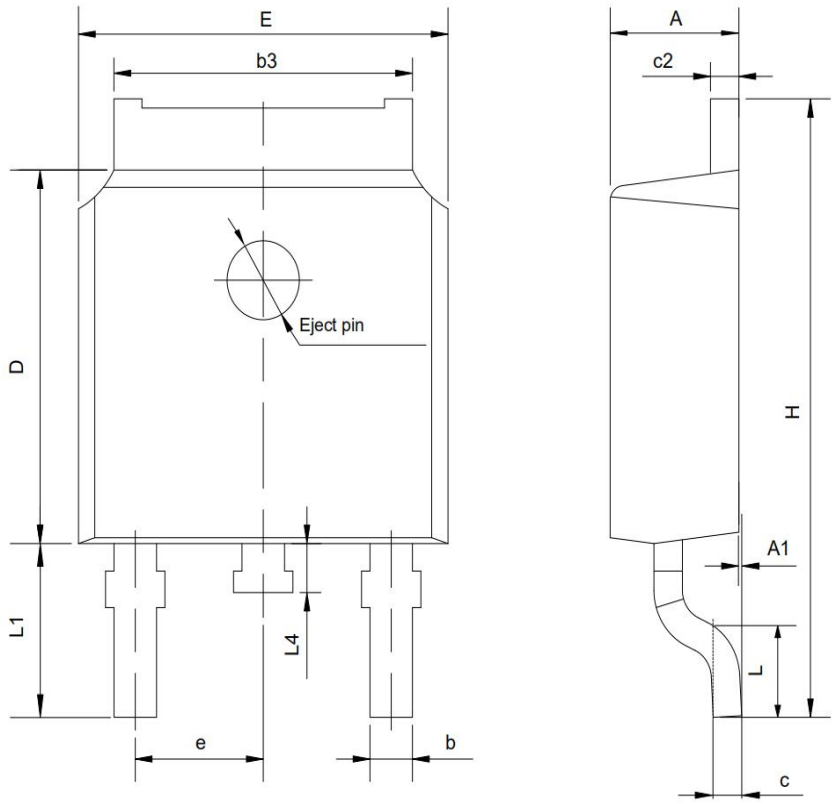
Unclamped Inductive Switching Test Circuit & Waveform





Package Dimensions of TO-252

Package Dimensions of TO-252 **Unit:mm**



SYMBOL	MILIMETER	
	MIN	MAX
A	2.10	2.50
A1	0.00	0.13
b	0.66	0.89
b3	5.10	5.55
c	0.40	0.65
c2	0.40	0.65
D	5.80	6.40
E	6.30	6.90
e	2.286BSC	
H	9.50	10.70
L	1.40	1.70
L1	2.70REF	
L4	0.60	1.00

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