650V N沟道增强型功率场效应管

650V N-CHANNEL ENHANCEMENT MODE POWER MOSFET

7A/650V

Discription

JXM7N65F This N-Channel enhancement mode power MOSFET is produced using planar stripe and DMOS technology. This advanced MOSFET technology has been especially tailored to reduce on-state resistance, and to provide superior switching performance and high avalanche energy strength.

Features

- V_{DS}=650V, I_D=7A，$R_{DS(on)(TYP.)}$=1.15Ω@VGS=10V
- Lower Gate Charge，Qg
- Lower Crss
- Fast switching capability
- Improved dv/dt capability, high ruggedness

100% UIS TESTED!

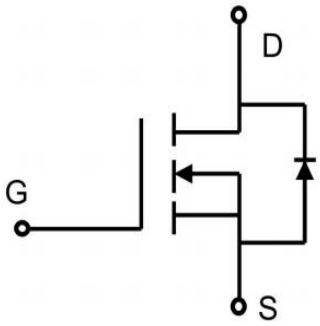
100% ΔVds

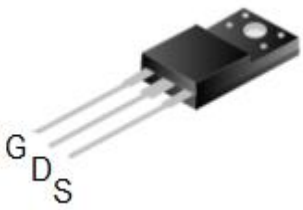
Applications

- Power faction correction
- AC-DC power supplies
- DC-DC converters
- H-bridge PWM motor drivers

Note

- Products made by JUXIN semiconductor





ITO-220AB

ORDERING INFORMATION

Part No.	Package	Marking	Material	Packing
JXM7N65F	ITO-220AB	JXM7N65F	Pb free	Tube

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	
Drain Current Pulsed(Note 1)		I_{DM}	28	A
Power Dissipation（T_C=25°C）		P_D	51	W
Single Pulsed Avalanche Energy (Note 2)		E_{AS}	245	mJ
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	$R_{\theta JC}$	3.7	°C/W
Thermal Resistance, Junction-to-Ambient(Note 3)	$R_{\theta JA}$	54	°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	3.0	4.0	V
Static Drain- Source On State Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=3.5A	--	1.15	1.35	Ω

Dynamic Characteristics

Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz	--	1089	--	pF
Output Capacitance	C_{0ss}		--	100	--	
Reverse Transfer Capacitance	C_{rss}		--	14	--	

Switching Characteristics

Turn-on Delay Time	$t_{d(on)}$	V_{DD}=319V, V_{GS}=10V, R_G=24Ω I_D=7A	--	19	--	ns
Turn-on Rise Time	t_r		--	29	--	
Turn-off Delay Time	$t_{d(off)}$		--	78	--	
Turn-off Fall Time	t_f		--	35	--	
Total Gate Charge	Q_g	VDD=520V, VGS=0 to 10V, ID=7A	--	27	--	nC
Gate-Source Charge	Q_{gs}		--	6	--	
Gate-Drain Charge	Q_{gd}		--	11	--	

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	--	--	1.2	V
Reverse Recovery Time	Trr	I=7A,V_{GS}=0V, dIF/dt=100A/μS	--	340	--	ns
Reverse Recovery Charge	Qrr		--	2.9	--	μC

注：

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. E_{AS} condition: Starting T_J=25C, V_{DD}=50V, V_G=10V, R_G=25ohm, L=10mH, I_{AS}=7A.
3. $R_{\theta JA}$ is measured with the device mounted on a minimum recommended pad of 2oz copper FR4 PCB.
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

典型特性曲线

Figure 1: Output Characteristics

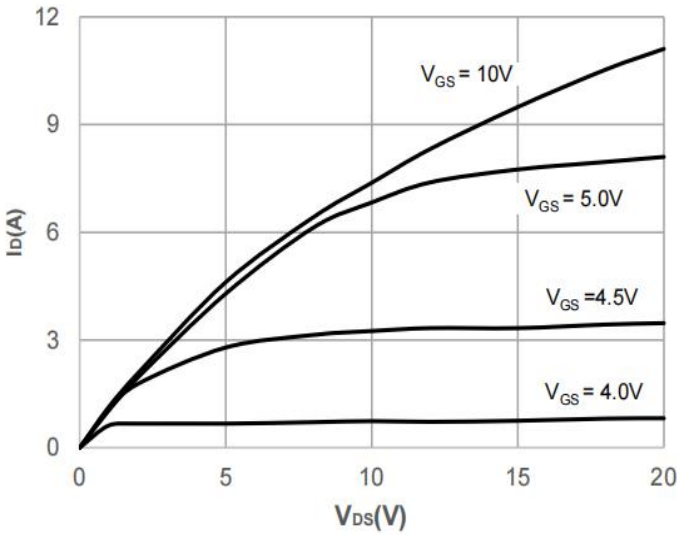


Figure 2: Typical Transfer Characteristics

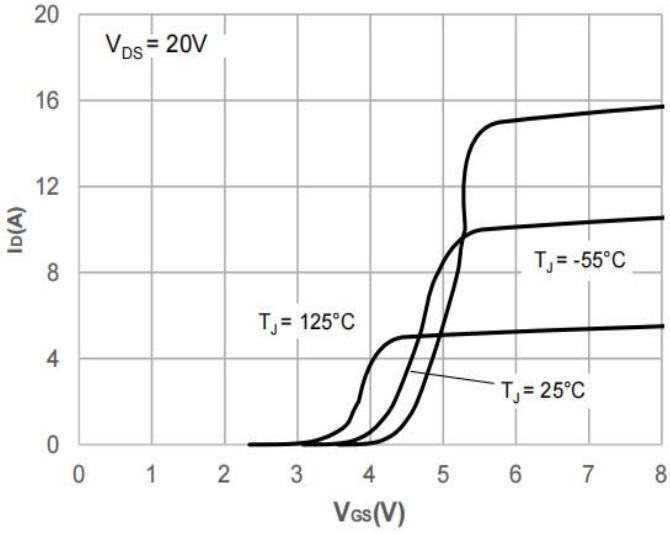


Figure 3: On-resistance vs. Drain Current

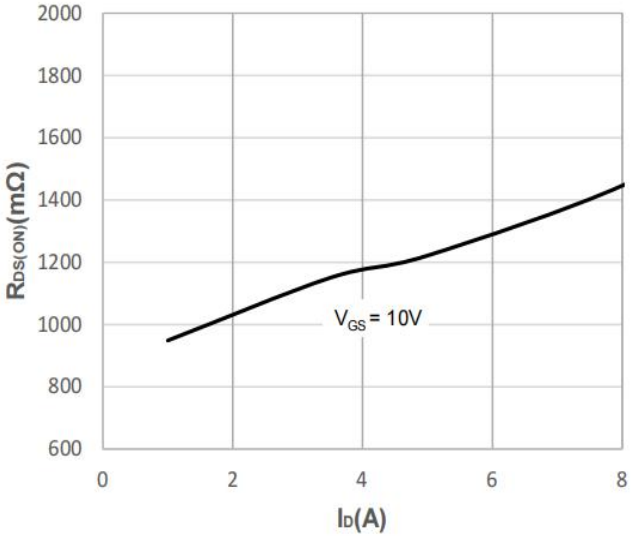


Figure 4: Body Diode Characteristics

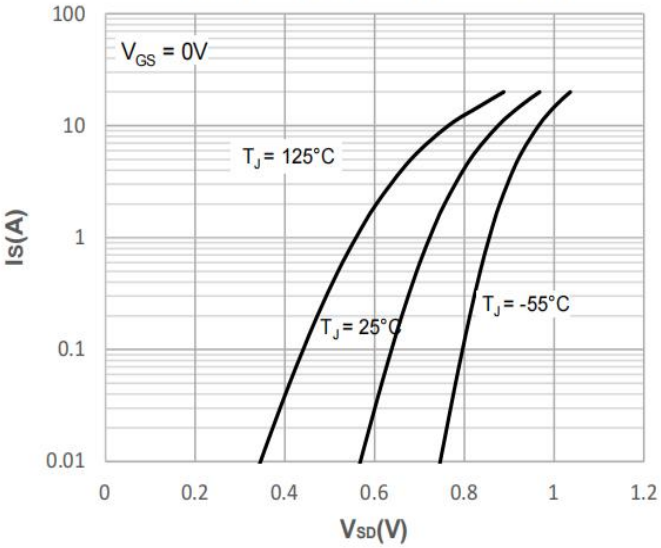


Figure 5: Gate Charge Characteristics

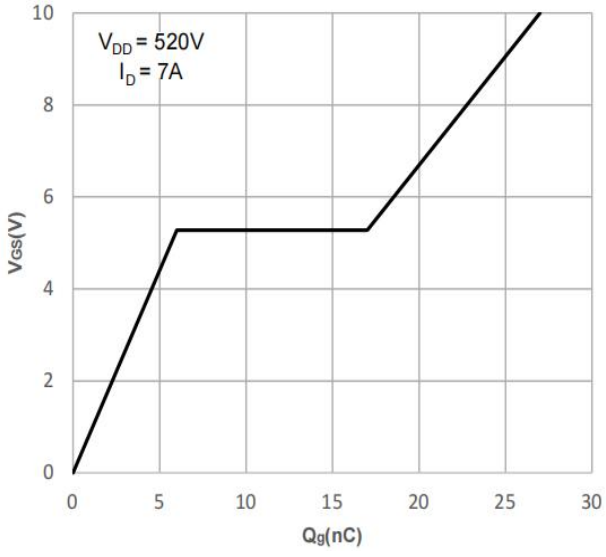
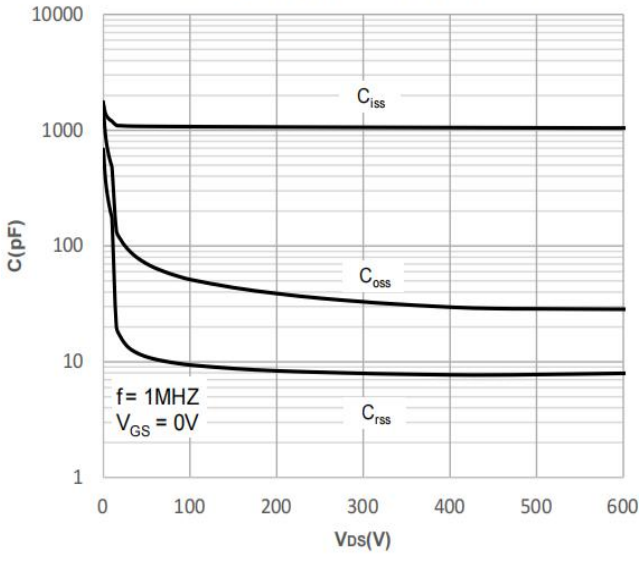


Figure 6: Capacitance Characteristics



The curve above is for reference only.

典型特性曲线

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

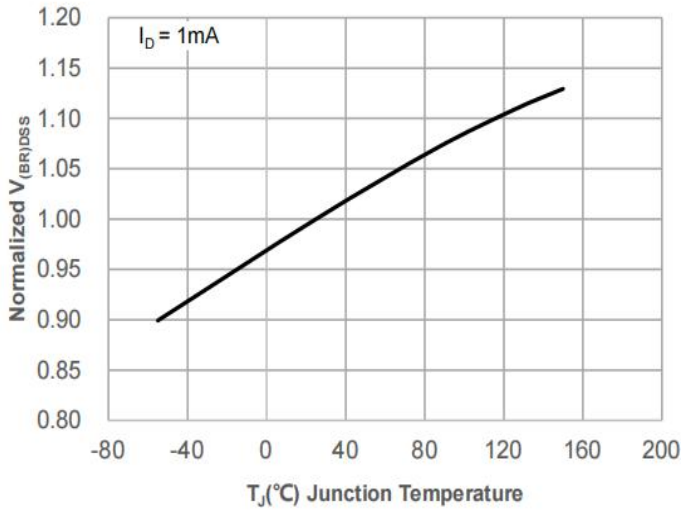


Figure 8: Normalized on Resistance vs. Junction Temperature

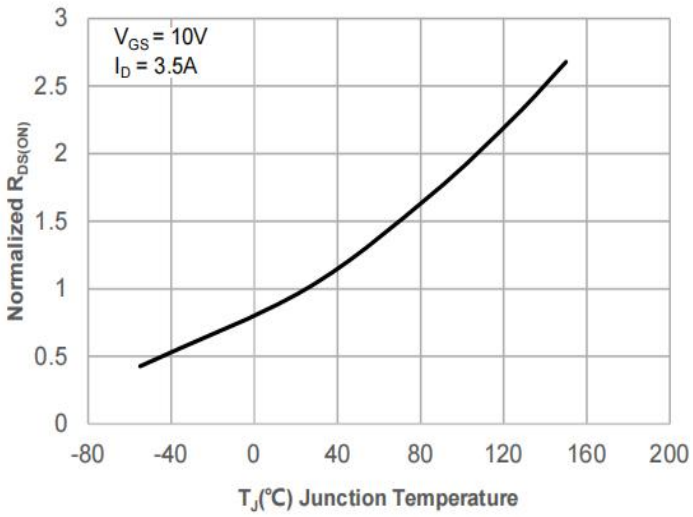


Figure 9: Maximum Safe Operating Area

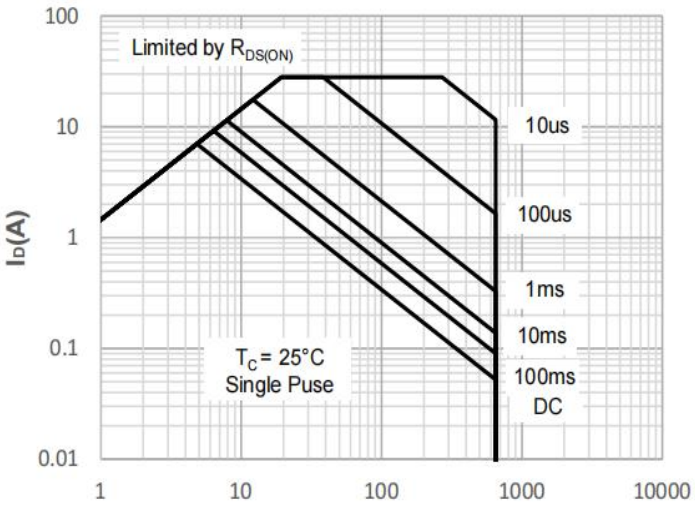


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

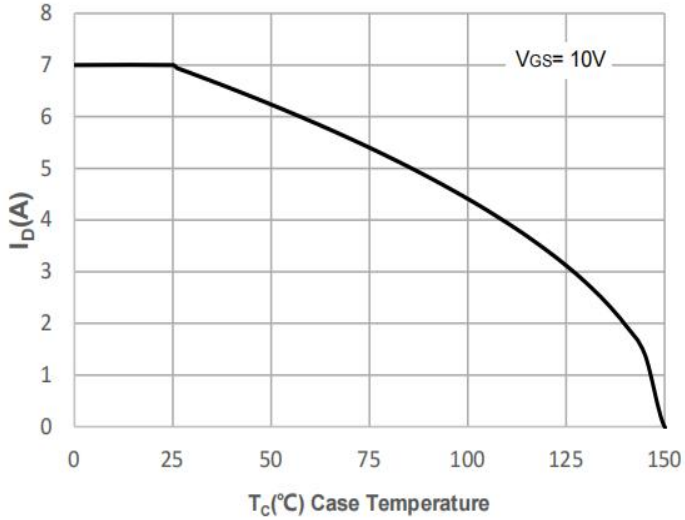


Figure 11: Normalized Maximum Transient Thermal Impedance

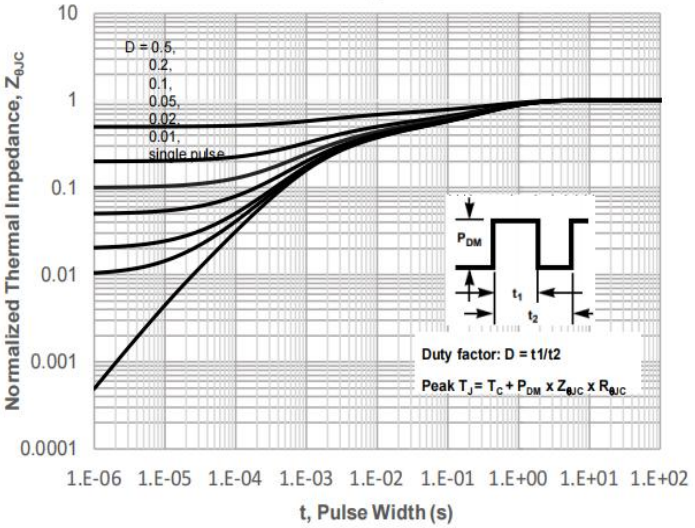
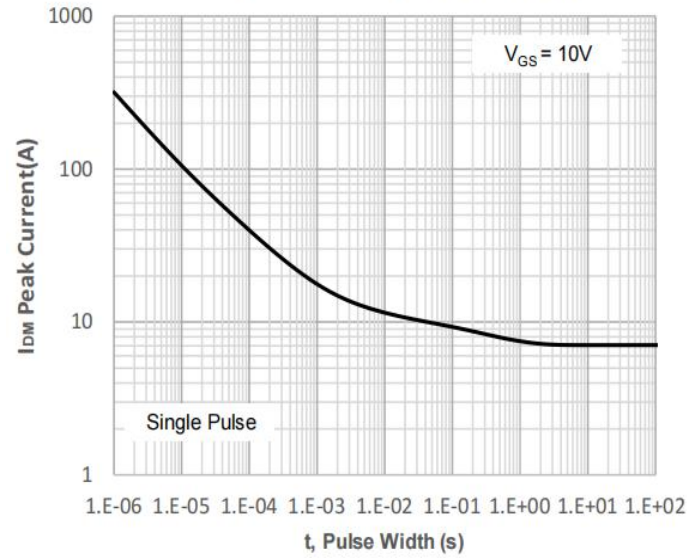


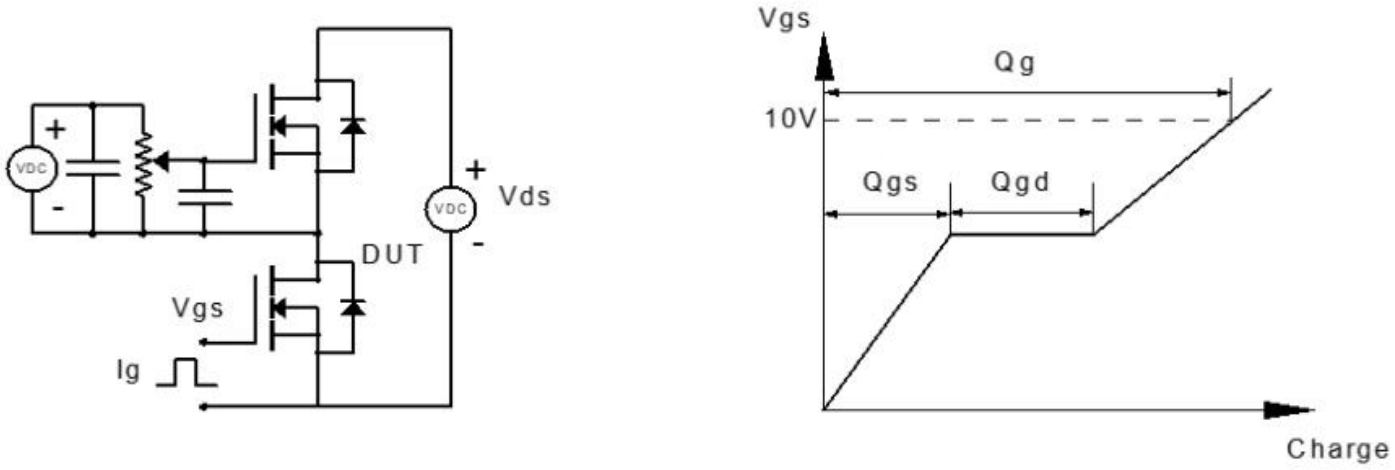
Figure 12: Peak Current Capacity



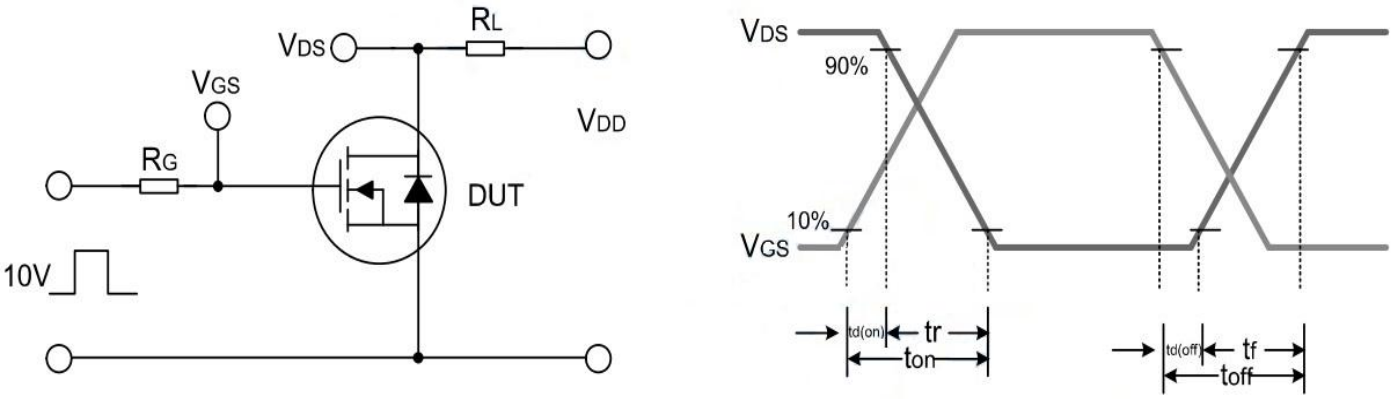
The curve above is for reference only.

Test Circuit

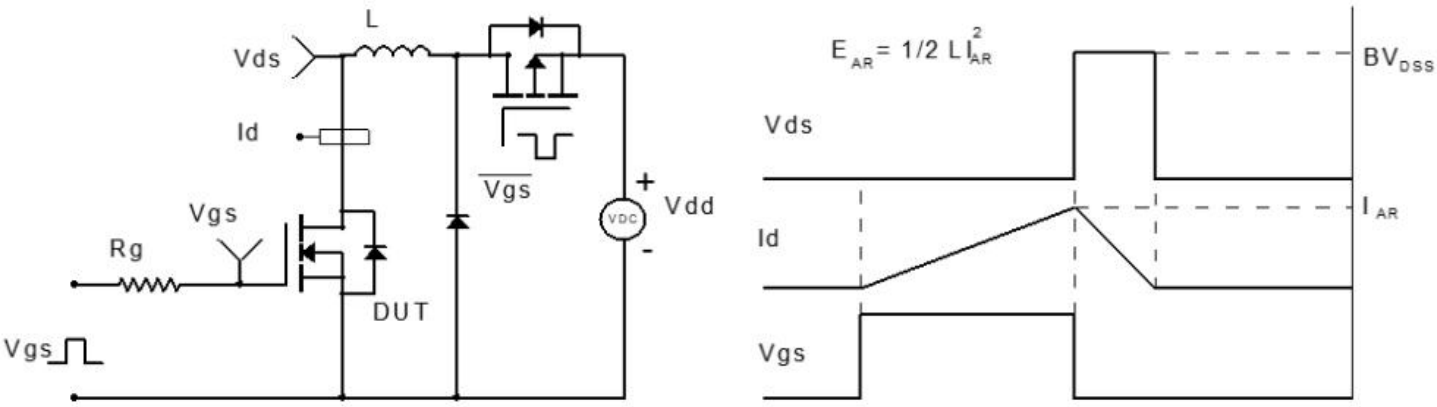
Gate Charge Test Circuit & Waveform



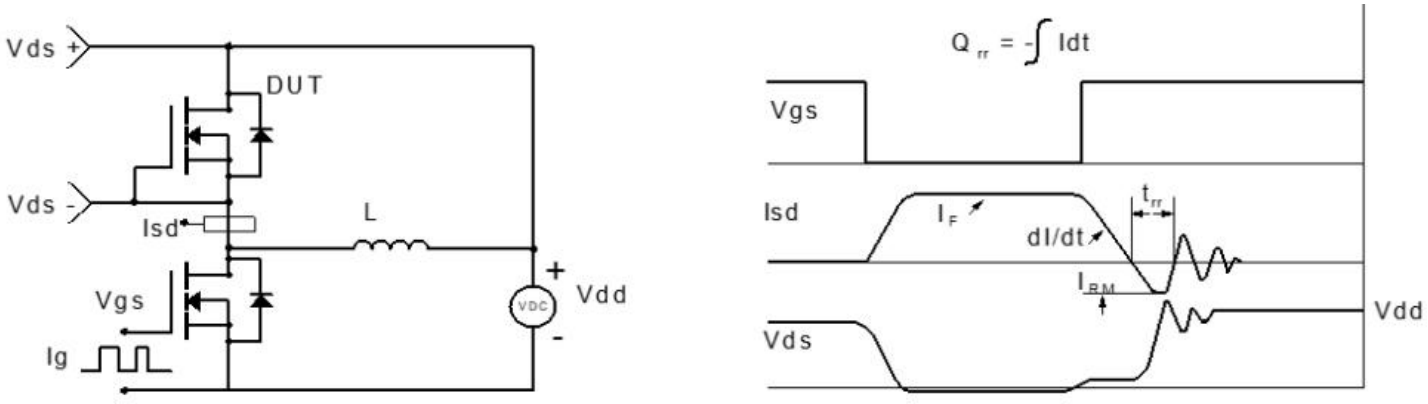
Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching Test Circuit & Waveform

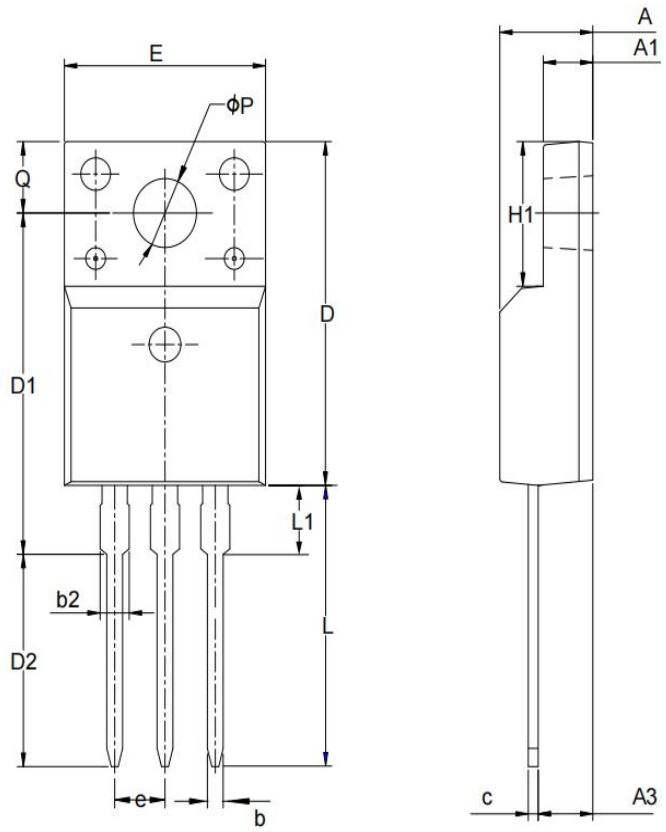


Diode Recovery Test Circuit & Waveform



Package Dimensions of ITO-220AB

Package Dimensions of ITO-220AB **Unit:mm**



SYMBOL	MILIMETER	
	MIN	MAX
A	4.20	4.95
A1	2.24	3.10
A3	2.30	3.30
b	0.60	1.00
b2	1.15	1.55
c	0.35	0.65
D	14.80	16.40
D1	15.00	17.00
D2	8.80	11.60
E	9.70	10.60
e	2.54BSC	
H1	6.00	7.40
L	11.40	15.10
L1	2.60	4.50
Φ P	2.90	3.40
Q	3.00	3.70

Legel Disclaimer Notice

All specifications are subject to be changed without notice to improve reliability function, design, etc.JUXIN makes no warranty,or guarantee regarding the suitability of the products for any purpose. To the extent permitted by applicable law, JUXIN disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special,consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement.

Statements regarding the suitability of products for certain types of applications are based on JUXIN's ideas of typical requirements that are often placed on JUXIN products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate a particular product with the properties described in the product specification is suitable for use in a particular application.Parameters provided in datasheets and specifications may different applications and performance may vary over time.

All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify JUXIN's terms and conditions of purchase, including but not limited to the warranty expressed therein.Except as expressly indicated in writing, JUXIN products are not designed for use in medical, life saving, or life-sustaining applications or for any other applications in which the failure of the JUXIN product could result in personal injury or death. Customers using or selling JUXIN products not expressly indicated for use in such applications do so at their own risk. Please contact authorized JUXIN personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by forbid or otherwise, to any intellectual property rights is granted by this document or by any conduct of JUXIN. Product names and markings noted herein may be trademarks of their respective owners.