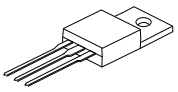
淄博圣诺

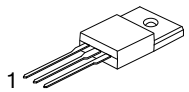
6N60 6N65

Power MOSFET

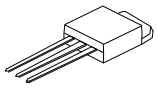
6.0 Amps, 600/650 Volts
N-CHANNEL POWER MOSFET



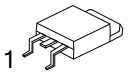
TO-220



ITO-220/TO-220F



TO-262/I^2PAK



TO-263/D^2PAK

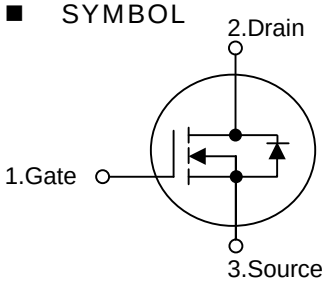
■ DESCRIPTION

6N60 6N65 is a high voltage MOSFET and is designed to have better characteristics, such as fast switching time, low gate charge, low on-state resistance and have a high rugged avalanche characteristics. This power MOSFET is usually used at high speed switching applications in switching power supplies and adaptors.

■ FEATURES

* $R_{DS(ON)}$ = 1.5Ω @V_{GS} = 10V
* Ultra low gate charge (typical 20 nC)
* Low reverse transfer Capacitance (C_{RSS} = typical 10pF)
* Fast switching capability
* Avalanche energy tested
* Improved dv/dt capability, high ruggedness

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment		
		1	2	3
6N60	TO-220	G	D	S
	ITO-220/TO-220F	G	D	S
6N65	TO-262/I^2PAK	G	D	S
	TO-263/D^2PAK	G	D	S

Note: Pin Assignment: G: Gate D: Drain S: Source

Part No.	Package	Packing
6N6*-TU	TO-220	50pcs / Tube
6N6* TU	ITO-220/TO-220F	50pcs / Tube
6N6* TU	TO-262	50pcs / Tube
6N6*-TU	TO-263	50pcs / Tube
6N6*-TR	TO-263	800pcs / 13" Reel

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6N60 6N65

Power MOSFET

■ ABSOLUTE MAXIMUM RATINGS (T_C = 25°C, unless otherwise specified)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage		6N60	V_{DSS}	600	V
		6N65		650	V
Gate-Source Voltage			V_{GSS}	±30	V
Avalanche Current (Note 2)			I_{AR}	6.0	A
Drain Current	Continuous		I_D	6.0	A
	Pulsed (Note 2)		I_{DM}	24.8	A
Avalanche Energy	Single Pulsed (Note 3)		E_{AS}	440	mJ
	Repetitive (Note 2)		E_{AR}	13	mJ
Peak Diode Recovery dv/dt (Note 4)			dv/dt	4.5	V/ns
Power Dissipation	TO-220		P_D (T_C = 25°C)	125	W
	TO-220F			40	W
	TO-262/I^2PAK			55	W
	TO-263/D^2PAK			55	W
Junction Temperature			T_J	+150	°C
Ambient Operating Temperature			T_{OPR}	-55 ~ +150	°C
Storage Temperature			T_{STG}	-55 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Repetitive Rating : Pulse width limited by T_J
3. L=64mH, I_{AS}=6.0A, V_{DD}=50V, R_G=25 Ω, Starting T_J = 25°C
4. I_{SD}≤6.0A, di/dt≤200A/μs, V_{DD} ≤ BV_{DSS}, Starting T_J = 25°C

■ THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction-to-Ambient	TO-262/I^2PAK	θ_{JA}	110	℃/W
	TO-263/D^2PAK		110	
	TO-220		62.5	
	ITO-220/TO-220F		62.5	
Junction-to-Case	TO-262/I^2PAK	θ_{Jc}	2.27	℃/W
	TO-263/D^2PAK		2.27	
	TO-220		1.00	
	ITO-220/TO-220F		3.20	

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■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage	6N65	BV_{DSS}	V_{GS} = 0V, I_D = 250μA	600			V
	6N65			650			V
Drain-Source Leakage Current		I_{DSS}	V_{DS} = 600V, V_{GS} = 0V			10	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS} = 30V, V_{DS} = 0V			100	nA
	Reverse		V_{GS} = -30V, V_{DS} = 0V			-100	nA
Breakdown Voltage Temperature Coefficient		$\triangle BV_{DSS}/\triangle T_J$	I_D = 250 μA, Referenced to 25°C		0.53		V/°C
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS} = V_{GS}, I_D = 250μA	2.0		4.0	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS} = 10V, I_D =3.0A			1.5	Ω
DYNAMIC CHARACTERISTICS							
Input Capacitance		C_{ISS}	V_{DS} =25V, V_{GS} =0V,f =1MHz		770	1000	pF
Output Capacitance		C_{OSS}			95	120	pF
Reverse Transfer Capacitance		C_{RSS}			10	13	pF
SWITCHING CHARACTERISTICS							
Turn-On Delay Time		$t_{D\ (ON)}$	V_{DD} =300V, I_D =6.0A, R_G=25Ω (Note 1, 2)		20	50	ns
Turn-On Rise Time		t_R			70	150	ns
Turn-Off Delay Time		$t_{D(OFF)}$			40	90	ns
Turn-Off Fall Time		t_F			45	100	ns
Total Gate Charge		Q_G	V_{DS}=480V, V_{GS}=10V, I_D=6.0A (Note 1, 2)		20	25	nC
Gate-Source Charge		Q_{GS}			4.9		nC
Gate-Drain Charge		Q_{GD}			9.4		nC
DRAIN-SOURCE DIODE CHARACTERISTICS							
Drain-Source Diode Forward Voltage		V_{SD}	V_{GS} = 0 V, I_{SD} = 6.0 A			1.4	V
Continuous Drain-Source Current		I_{SD}				6.2	A
Pulsed Drain-Source Current		I_{SM}				24.8	A
Reverse Recovery Time		t_{RR}	V_{GS} = 0 V, I_{SD} = 6.0A, di/dt = 100 A/μs (Note1)		290		ns
Reverse Recovery Charge		Q_{RR}			2.35		μC

Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle≤2%
2. Essentially independent of operating temperature

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■ TEST CIRCUITS AND WAVEFORMS

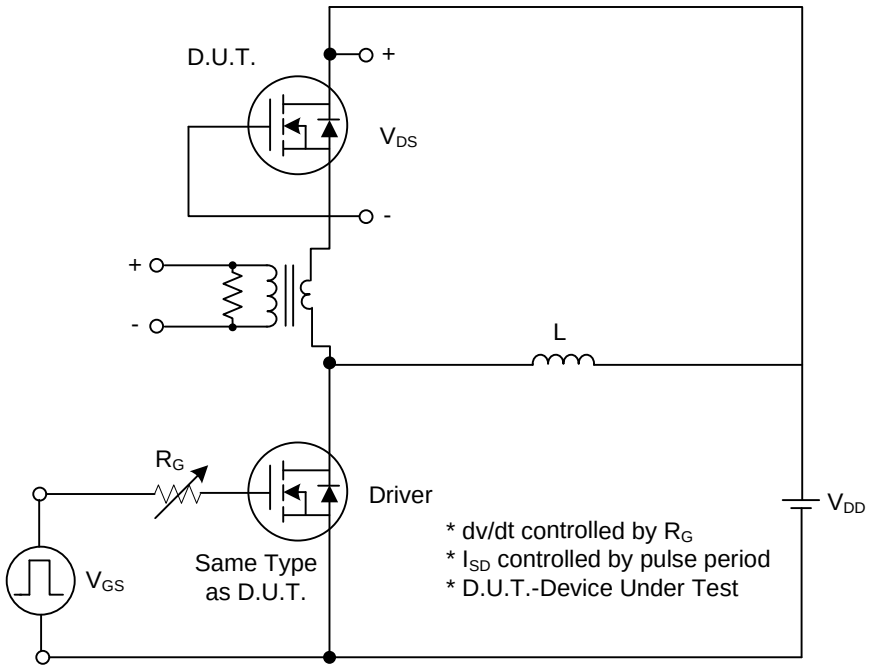


Fig. 1A Peak Diode Recovery dv/dt Test Circuit

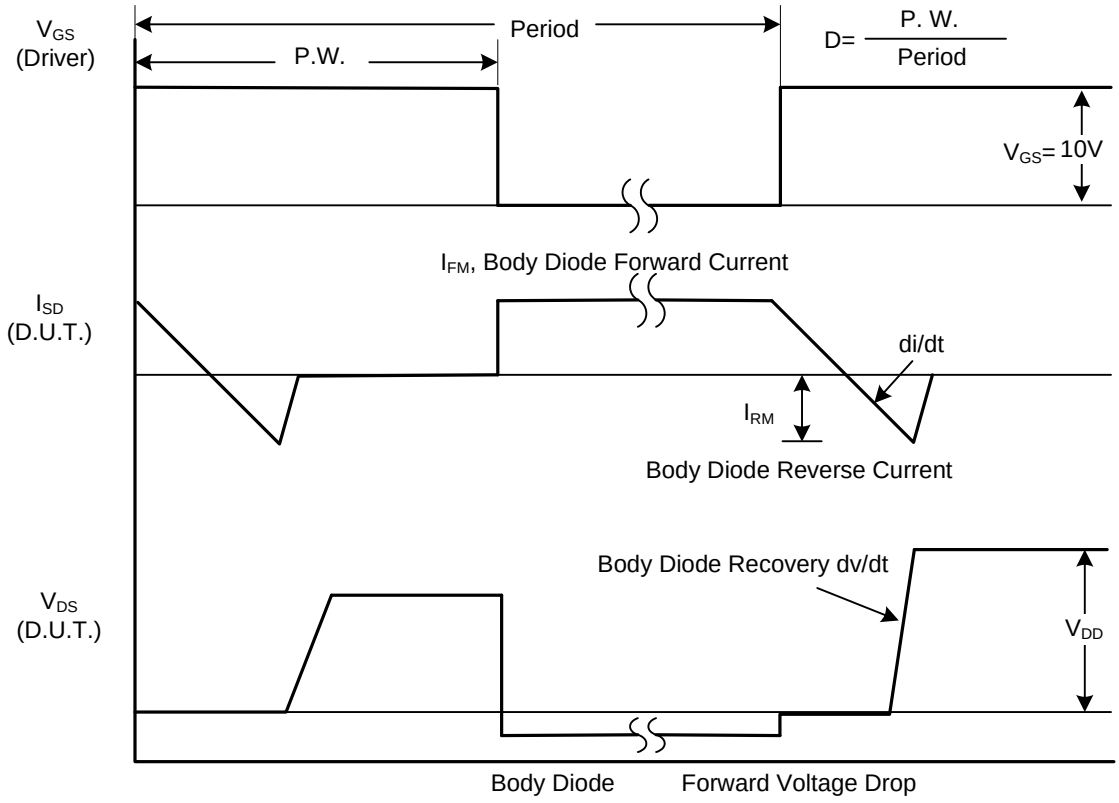


Fig. 1B Peak Diode Recovery dv/dt Waveforms

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■ TEST CIRCUITS AND WAVEFORMS (Cont.)

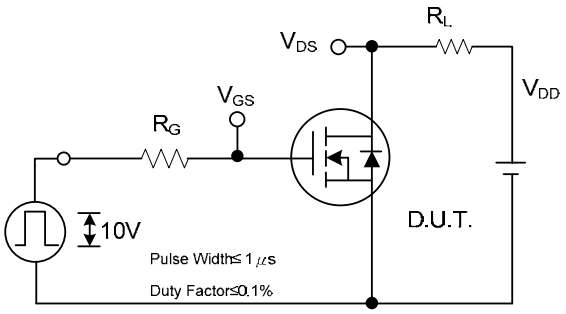


Fig. 2A Switching Test Circuit

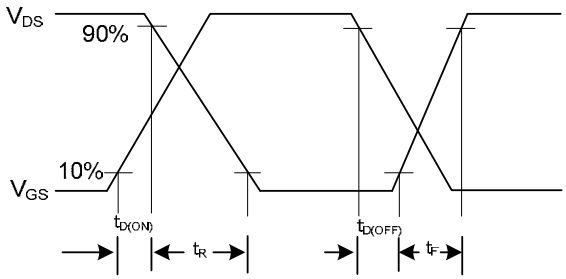


Fig. 2B Switching Waveforms

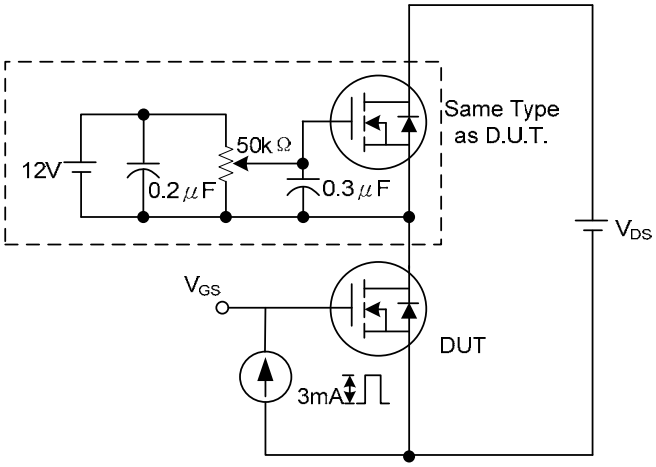


Fig. 3A Gate Charge Test Circuit

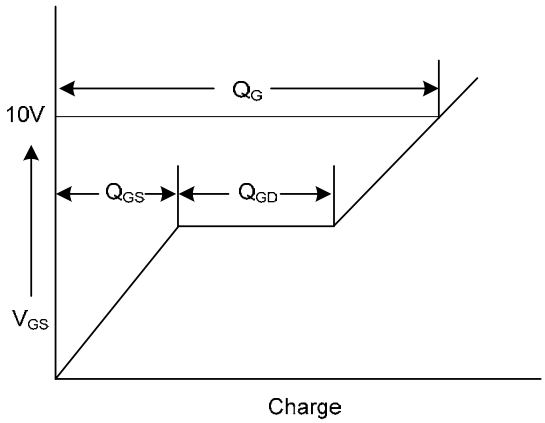


Fig. 3B Gate Charge Waveform

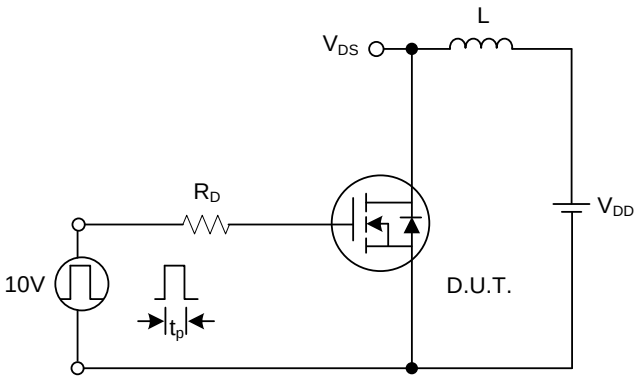


Fig. 4A Unclamped Inductive Switching Test Circuit

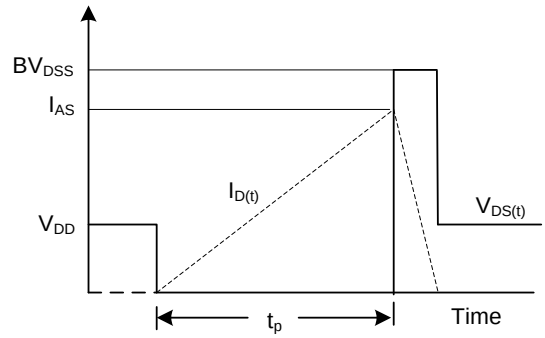
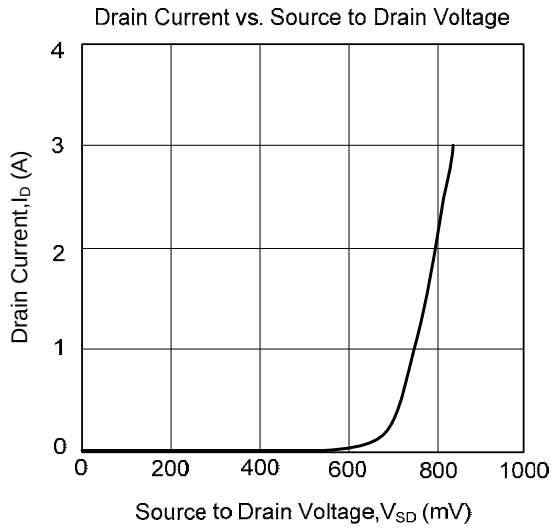
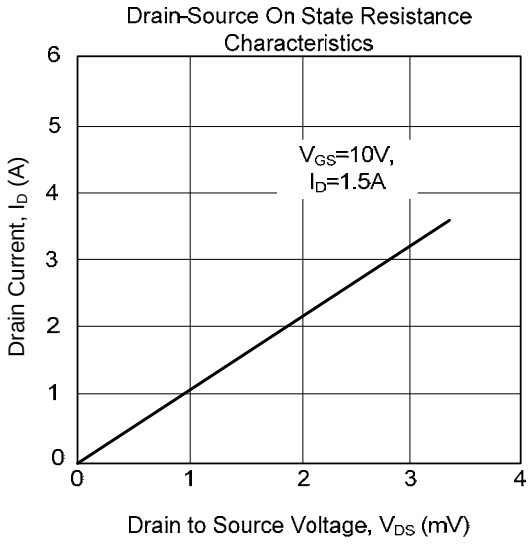


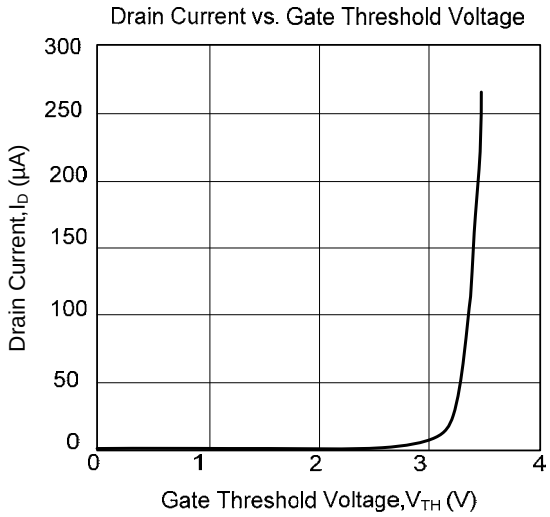
Fig. 4B Unclamped Inductive Switching Waveforms

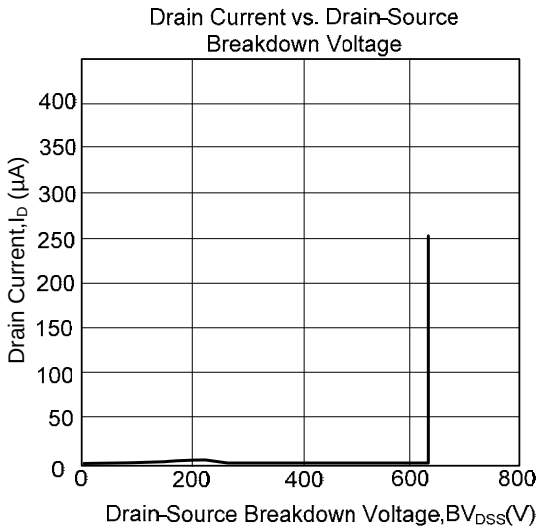
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■ TYPICAL CHARACTERISTICS









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