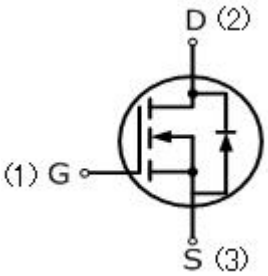
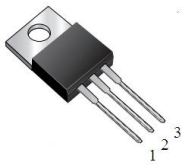
12N65(F,B,H)

12A mps,650 Volts N-CHANNEL MOSFET

FEATURE

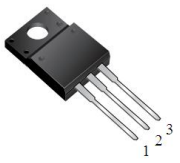
- 12A,650V,$R_{DS(ON)}$=0.7Ω@V_{GS}=10V/6A
- Low gate charge
- Low C_{iss}
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability





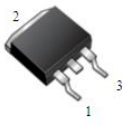
TO-220AB

12N65



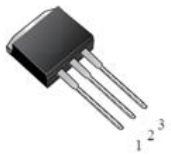
ITO-220AB

12N65F



TO-263

12N65B



TO-262

12N65H

Absolute Maximum Ratings(T_C=25℃,unless otherwise noted)

Parameter		Symbol	12N65	UNIT
Drain-Source Voltage		V_{DSS}	600	V
Gate-Source Voltage		V_{GSS}	±30	
Continuous Drain Current		I_D	12	A
Pulsed Drain Current(Note1)		I_{DM}	48	
Single Pulse Avalanche Energy (Note 2)		E_{AS}	320	mJ
Avalanche Current(Note1)		I_{AR}	12	A
Repetitive Avalanche Energy (Note1)		E_{AR}	33	mJ
Reverse Diode dV/dt (Note 3)		dv/dt	5.5	V/ns
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55 to +150	℃
Maximum lead temperature for soldering purposes, 1/8″from case for 5 seconds		T_L	260	℃
Mounting Torque	6-32 or M3 screw		10	lbf • in
			1.1	N • m

Thermal Characteristics

Parameter		Symbol	ITO-220	TO-220	TO-262 TO-263	Units
Maximum Junction-to-Case		R_{thJC}	1.0	0.8	0.8	℃/W
Maximum Power Dissipation	T_C=25℃	P_D	125	155	155	W

Electrical Characteristics (T_c=25℃,unless otherwise noted)						
Parameter	**Symbol**	**Test Conditions**	**Mix**	**Typ**	**Max**	**Units**
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=250uA	650	—	—	V
Breakdown Temperature Coefficient	ΔBV_{DSS} /ΔT_J	Reference to 25℃, I_D=250uA	—	0.6	—	V/℃
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=650V,V_{GS}=0V	—	—	1	uA
Gate-Body Leakage Current,Forward	I_{GSSF}	V_{GS}=30V,V_{DS}=0V	—	—	100	nA
Gate-Body Leakage Current,Reverse	I_{GSSR}	V_{GS}=-30V,V_{DS}=0V	—	—	-100	nA
On Characteristics						
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS}=10V,I_D=250uA	2	—	4	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=6A	—	—	0.7	Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V, f=1.0MHZ	—	—	1730	pF
Output Capacitance	C_{oss}		—	—	180	pF
Reverse Transfer Capacitance	C_{rss}		—	—	90	pF
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=300V,I_D=12A, R_G=4.7Ω (Note4,5)	—	20	—	ns
Turn-On Rise Time	t_r		—	28	—	ns
Turn-Off Delay Time	$t_{d(off)}$		—	55	—	ns
Turn-Off Fall Time	t_f		—	30	—	ns
Total Gate Charge	Qg	V_{DS}=480V,I_D=12A, V_{GS}=10V, (Note4,5)	—	58	—	nC
Gate-Source Charge	Qgs		—	14	—	nC
Gate-Drain Charge	Qgd		—	32	—	nC
Drain-Source Body Diode Charcteristics and Maximum Ratings						
Continuous Diode Forward Current	I_S		—	—	12	A
Pulsed Diode Forward Current	I_{SM}		—	—	48	A
Diode Forward Voltage	V_{SD}	I_S=12A,V_{GS}=0V	—	—	1.5	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V,I_S=12A, dI_F/dt=100A/us, (Note4)	—	600	—	ns
Reverse Recovery Charge	Q_{rr}		—	43	—	uC

Notes

1. Repetitive Rating:pulse width limited by maximum junction temperature.
2. V_{DD}=50V,starling,L=12mH,R_g=25Ω,I_{AS}=12A , T_J=25℃.
3. I_{SD}≤I_D,dI/dt=_A/us,V_{DD}≤BV_{DSS},starting T_J=25℃.
4. Pulse width≤300us;duty cycle≤2%.
5. Repetitive rating; pulse width limited by maximum junction temperature.