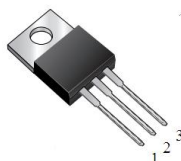
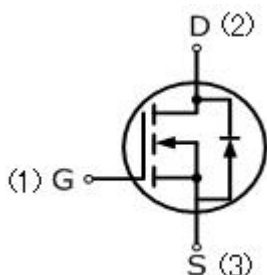


12N65(F,B,H)

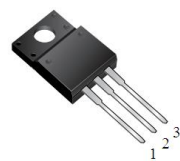
12A mps,650 Volts N-CHANNEL MOSFET

FEATURE

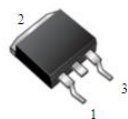
- 12A,650V, $R_{DS(ON)}=0.7\Omega$ @ $V_{GS}=10V/6A$
- Low gate charge
- Low C_{iss}
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability



TO-220AB
12N65



ITO-220AB
12N65F



TO-263
12N65B



TO-262
12N65H

Absolute Maximum Ratings($T_C=25^\circ\text{C}$, 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	$^\circ\text{C}$
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	T_L	260	$^\circ\text{C}$
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	$^\circ\text{C}/\text{W}$
Maximum Power Dissipation	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	Q _g	V _{DS} =480V,I _D =12A, V _{GS} =10V, (Note4,5)	—	58	—	nC
Gate-Source Charge	Q _{gs}		—	14	—	nC
Gate-Drain Charge	Q _{gd}		—	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,	—	600	—	ns
Reverse Recovery Charge	Q _{rr}	dI _F /dt=100A/us, (Note4)	—	43	—	uC

Notes

1. Repetitive Rating; pulse width limited by maximum junction temperature.
2. V_{DD}=50V, starting, L=12mH, R_g=25 Ω, 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.