

12A 650V N Channel MOSFET

Features

- $V_{DS} = 650V$
- $I_D = 12A @ V_{GS} = 10V$
- $R_{DS(ON)} (Typ) = 0.62\Omega @ V_{GS} = 10V$

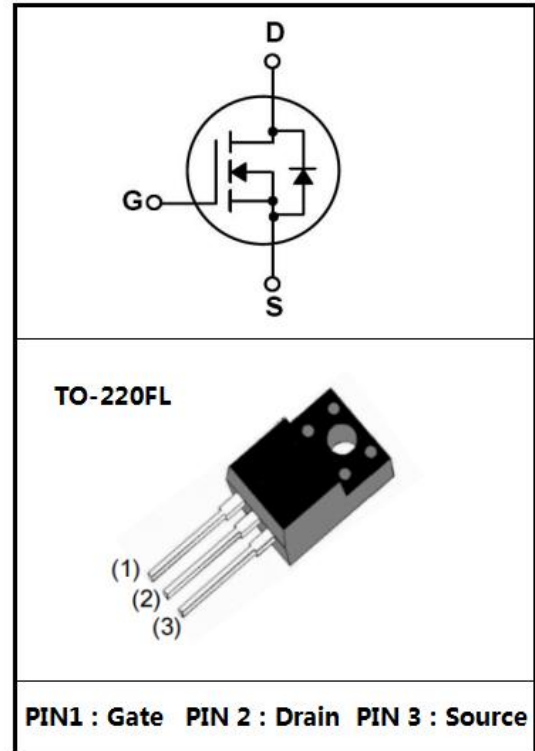
Applications

- Power Supply
- PFC
- High Current, High Speed Switching

Descriptions

These N-channel MOSFET are produced using advanced plane MOSFET Technology, which provides Low on-state resistance, high switching performance and excellent quality.

These devices are suitable device for SMPS, high Speed switching and general purpose applications.



Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	650	V
Drain Current	$I_D(T_C=25^\circ\text{C})$	12	A
Drain Current	$I_D(T_C=100^\circ\text{C})$	7.6	A
Drain Current - Pulsed	I_{DM}	48	A
Gate-Source Voltage	V_{GS}	± 30	V
Single Pulsed Avalanche Energy	E_{AS}	880	mJ
Repetitive Avalanche Energy	E_{AR}	25	mJ
Avalanche Current	I_{AR}	12	A
Power Dissipation	P_D	54	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$
Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Junction to Case	$R_{\theta JC}$	2.3	$^\circ\text{C/W}$

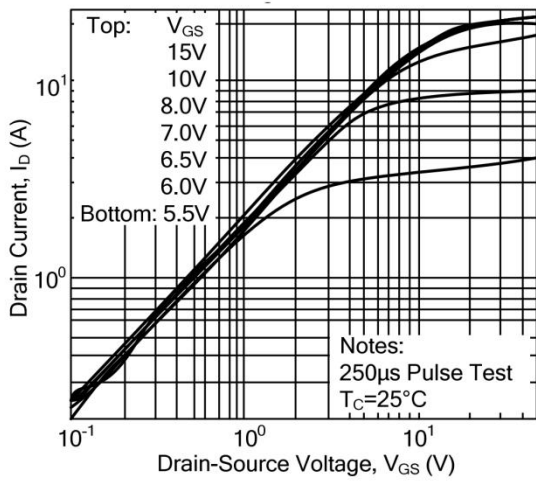
Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	650			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=650V$ $V_{GS}=0V$			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 30V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=6A$		0.62	0.78	Ω
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		2200		pF
Output Capacitance	C_{oss}			290		
Reverse Transfer Capacitance	C_{rss}			50		
Total Gate Charge	Q_G	$V_{DS}=520V, I_D=12A,$ $V_{GS}=10V$		43		nC
Gate-Source Charge	Q_{GS}			8.8		
Gate-Drain Charge	Q_{GD}			20		

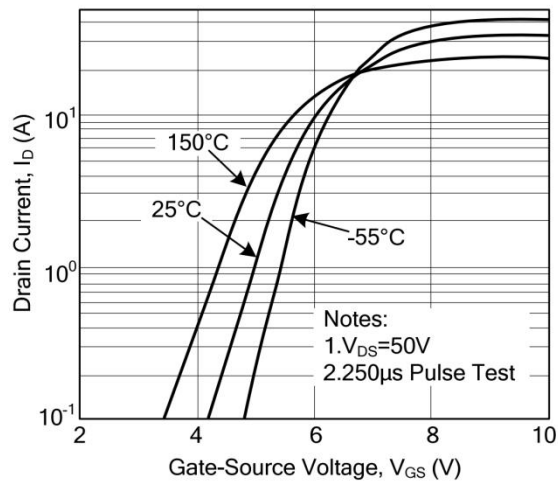
Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=325V$ $I_D=12A$ $R_G=25\Omega$		32		ns
Turn-On Rise Time	t_r			117		
Turn-Off Delay Time	$t_{d(off)}$			98		
Turn-Off Fall Time	t_f			88		
Maximum Continuous Drain-Source Diode Forward Current	I_S				12	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				48	A
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = 12A$			1.4	V
Reverse Recovery Time	t_{rr}	$V_{GS} = 0V, I_S = 12A,$ $dI_F/dt = 100 A/\mu s$		390		nS
Reverse Recovery Charge	Q_{rr}			3550		nC

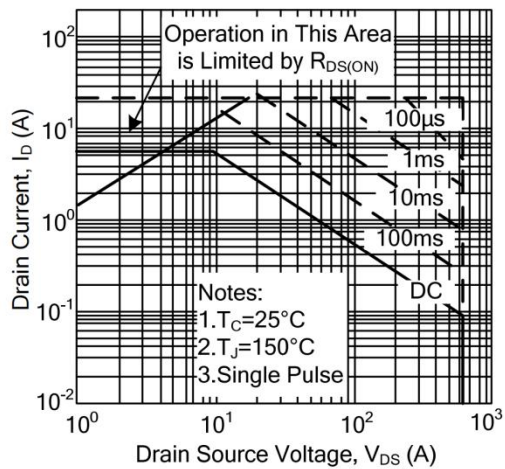
Electrical Characteristic Curve



1. On-Resign Characteristics

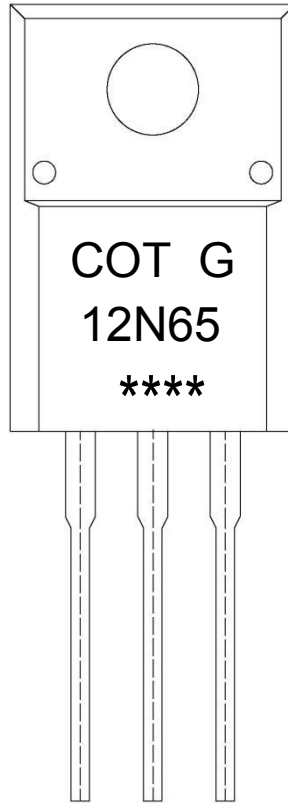


2. Transfer Characteristics



3. Maximum Safe Operating Area

Marking Instructions



Note:

- COT: Company Logo
- G: Halogen Free
- 12N65: Product Type.
- ****: Lot No. Code, code change with Lot No.

Packaging SPEC.

TUBE INFORMATION

Package Type	Units					Dimension (unit: mm ³)		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-220FL	50	20	1,000	5	5,000	532×33×7.0	555×164×50	575×290×180

Package Outline Dimensions

TO-220FL

单位: mm

