

20A 650V N Channel MOSFET

Features

- $V_{DS} = 650V$
- $I_D = 20A @V_{GS} = 10V$
- $R_{DS(ON)} (Max) = 0.55\Omega @V_{GS} = 10V$
- Low gate charge
- Low C_{rss}
- Fast switching

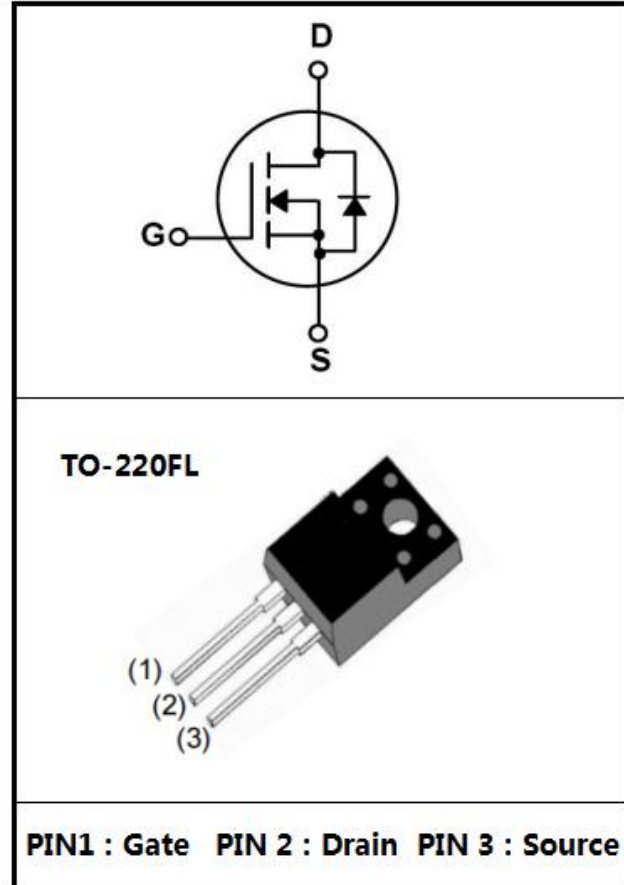
Applications

- High efficiency switch mode power supplies
- Electronic lamp ballasts based on half bridge
- UPS

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	$I_D(T_C=25^\circ\text{C})$	20	A
Drain Current - Pulsed	I_{DM}	40	A
Gate-Source Voltage	V_{GSS}	± 30	V
Single Pulsed Avalanche Energy	E_{AS}	477	mJ
Avalanche Current	I_{AR}	10.5	A
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.27	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Power Dissipation	P_D	55	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

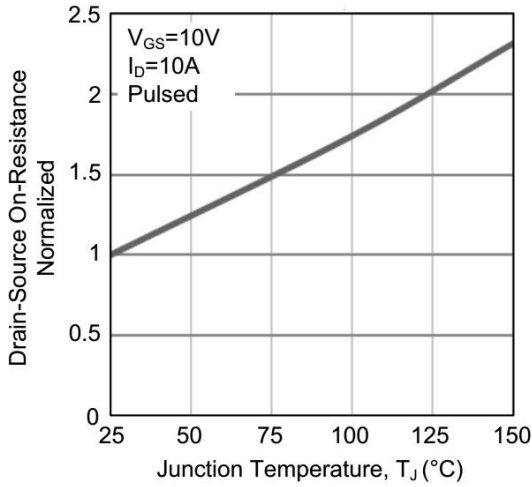
Electrical Characteristics(Ta=25°C)

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	3.2	4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=10A$		0.42	0.55	Ω
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=20A$			1.4	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		3400		pF
Output Capacitance	C_{oss}			270		pF
Reverse Transfer Capacitance	C_{rss}			23		pF
Total Gate Charge	Q_G	$V_{DS}=100V$ $I_D=20A$ $V_{GS}=10V$		54		nC
Gate-Source Charge	Q_{GS}			10		ns
Gate-Drain Charge	Q_{GD}			13		ns

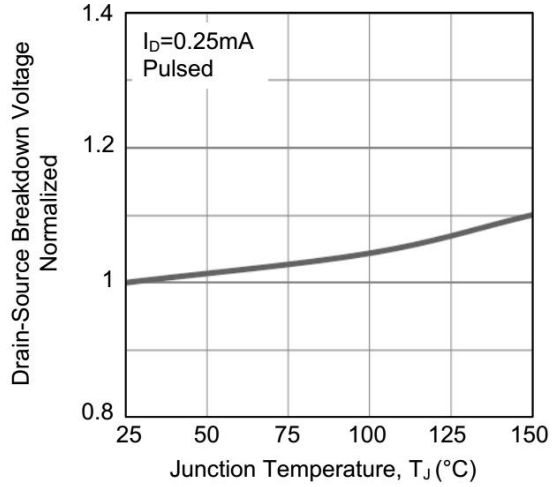
Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=100V$ $I_D=20A$ $V_{GS}=10V$ $R_G=25\Omega$		28		ns
Turn-On Rise Time	t_r			35		
Turn-Off Delay Time	$t_{d(off)}$			140		
Turn-Off Fall Time	t_f			76		
Maximum Continuous Drain-Source Diode Forward Current	I_S				20	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				40	A
Reverse Recovery Time	t_{rr}	$V_{GS} = 0V$ $I_S = 20A$ $dI_F/dt = 100 A/\mu s$		506		ns
Reverse Recovery Charge	Q_{rr}			9		μC

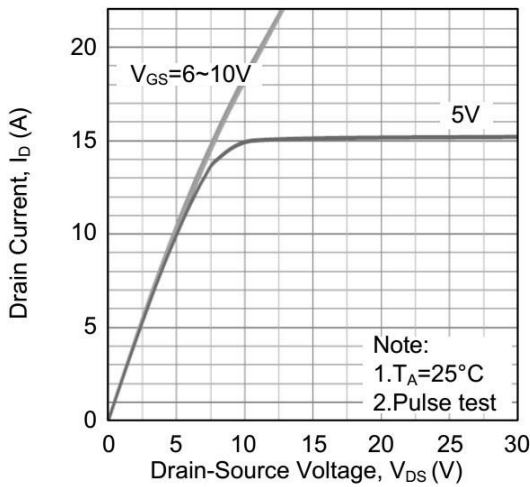
Electrical Characteristic Curve



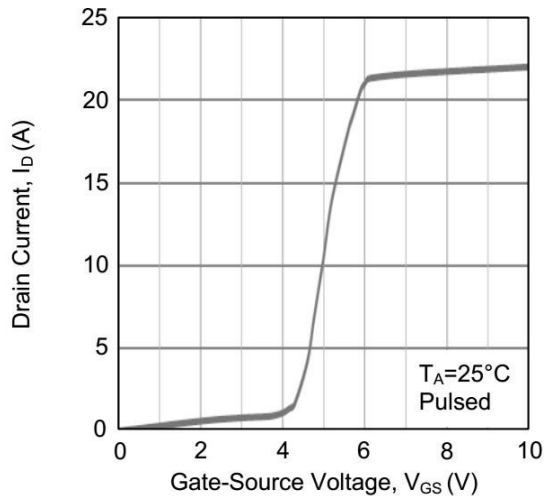
1. Drain-Source On-Resistance vs. Junction Temperature



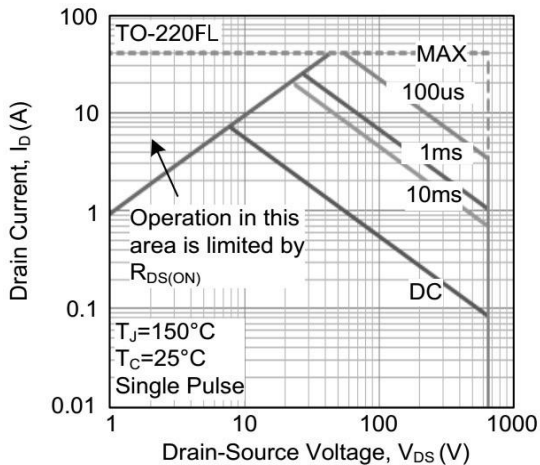
2. Breakdown Voltage vs. Junction Temperature



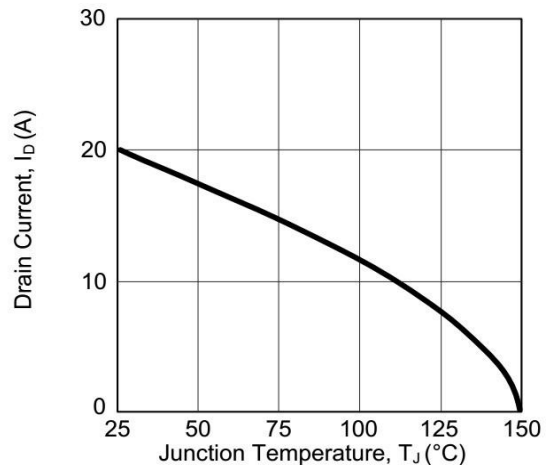
3. Drain Current vs. Drain-Source Voltage



4. Drain Current vs. Gate-Source Voltage

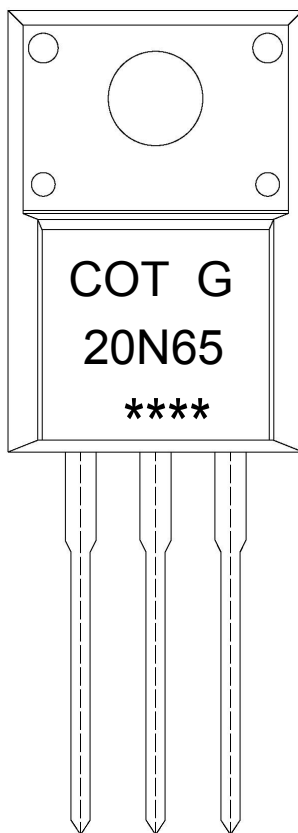


5. Safe Operating Area



6. Drain Current vs. Junction Temperature

Marking Instructions



Note:

COT: Company Logo

G: Halogen Free

20N65: Product Type.

****: Lot No. Code, code change with Lot No.

Packaging SPEC.

TUBE

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

