20A 500V N Channel MOSFET

Feactures

- VDS =500V
- ID =20A @VGS =10V
- RDS(ON) (Typ)=0.22Ω @VGS =10V

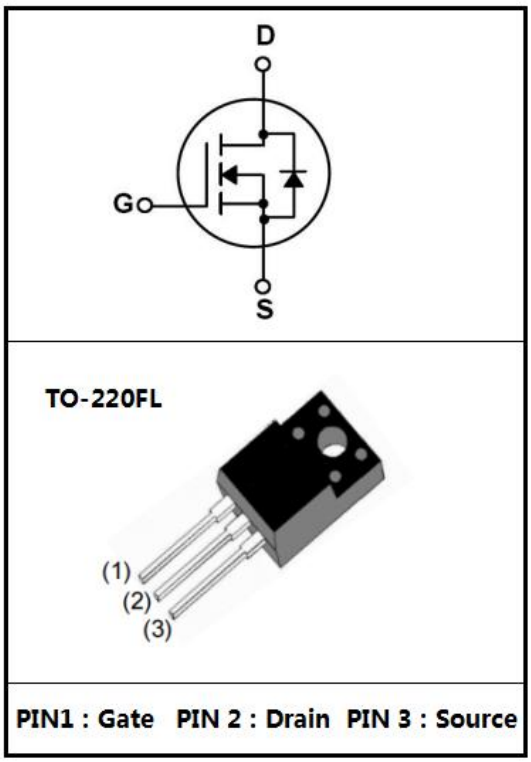
Applications

- 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℃)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	500	V
Drain Current	I_D(Tc=25℃)	20	A
Drain Current	I_D(Tc=100℃)	12.9	A
Drain Current - Pulsed	I_{DM}	80	A
Gate-Source Voltage	V_{GSS}	±30	V
Single Pulsed Avalanche Energy	E_{AS}	1100	mJ
Repetitive Avalanche Energy	E_{AR}	25	mJ
Avalanche Current	I_{AR}	20	A
Power Dissipation	P_D(Tc=25℃)	43	W
Operating and Storage Temperature Range	T_J,T_{STG}	-55 to 150	℃
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	℃/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.9	℃/W

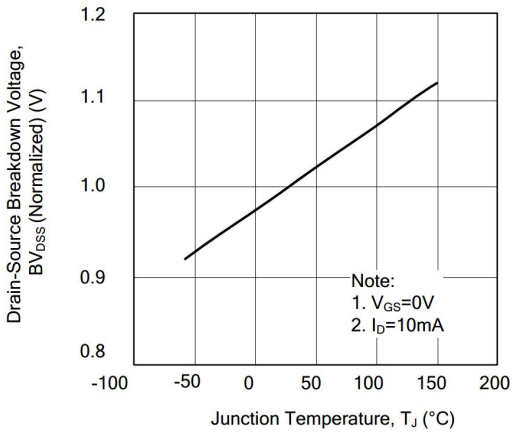
Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	500			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=500V V_{GS}=0V			10	μA
		V_{DS}=400V T_C=125℃			100	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±30V V_{DS}=0V			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	3.0		5.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=10A		0.22	0.26	Ω
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		3400		pF
Output Capacitance	C_{oss}			330		
Reverse Transfer Capacitance	C_{rss}			25		
Total Gate Charge	Q_G	V_{DS}= 400V, I_D= 20A, V_{GS}= 10V		55		nC
Gate-Source Charge	Q_{GS}			12		
Gate-Drain Charge	Q_{GD}			15		

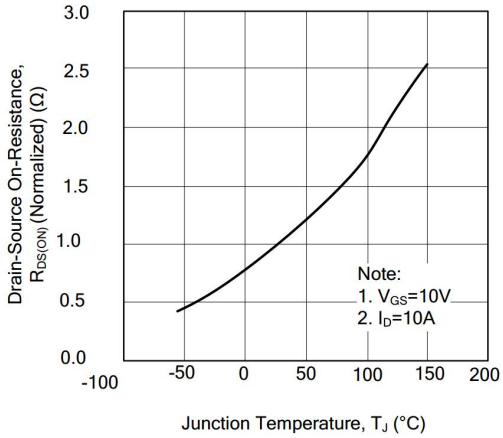
Electrical Characteristics(Ta=25℃)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=250V I_D=20A R_G=25Ω		35		ns
Turn-On Rise Time	t_r			32		
Turn-Off Delay Time	$t_{d(off)}$			172		
Turn-Off Fall Time	t_f			73		
Maximum Continuous Drain-Source Diode Forward Current	I_S				20	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				80	A
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS} = 0 V, I_S = 20A			1.4	V
Reverse Recovery Time	t_{rr}	V_{GS} = 0V, I_S = 20A, dI_F/dt = 100 A/μs		420		nS
Reverse Recovery Charge	Q_{rr}			6500		nC

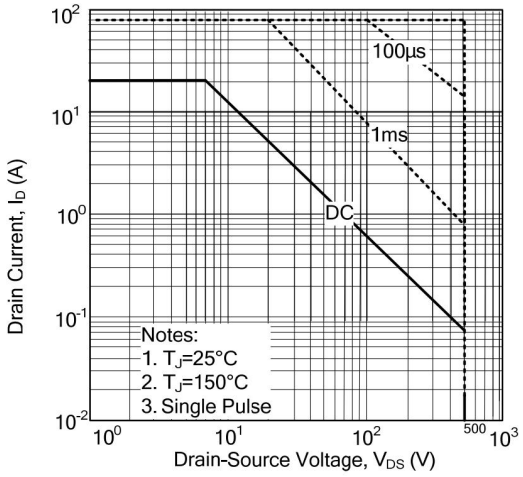
Electrical Characteristic Curve



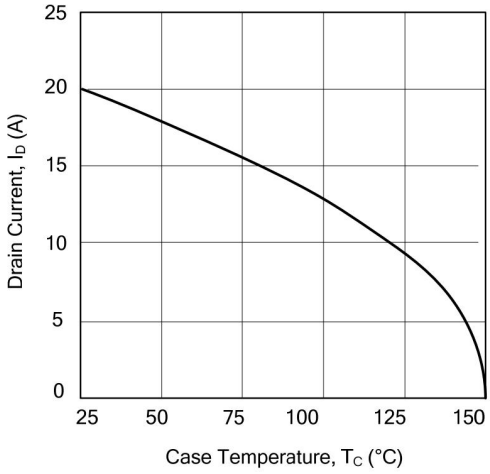
1. Breakdown Voltage Variation vs. Temperature



2. On-Resistance Junction Temperature

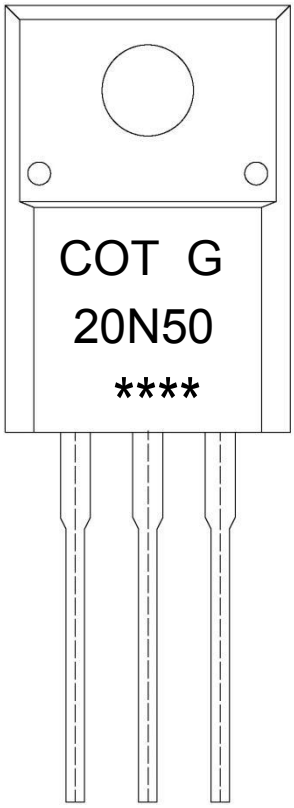


3. Safe Operating Area



4. Maximum Drain Current vs. Case Temperature

Marking Instructions



Note:

COT:	Company Logo
G:	Halogen Free
20N50:	Product Type.
****:	Lot No. Code, code change with Lot No.

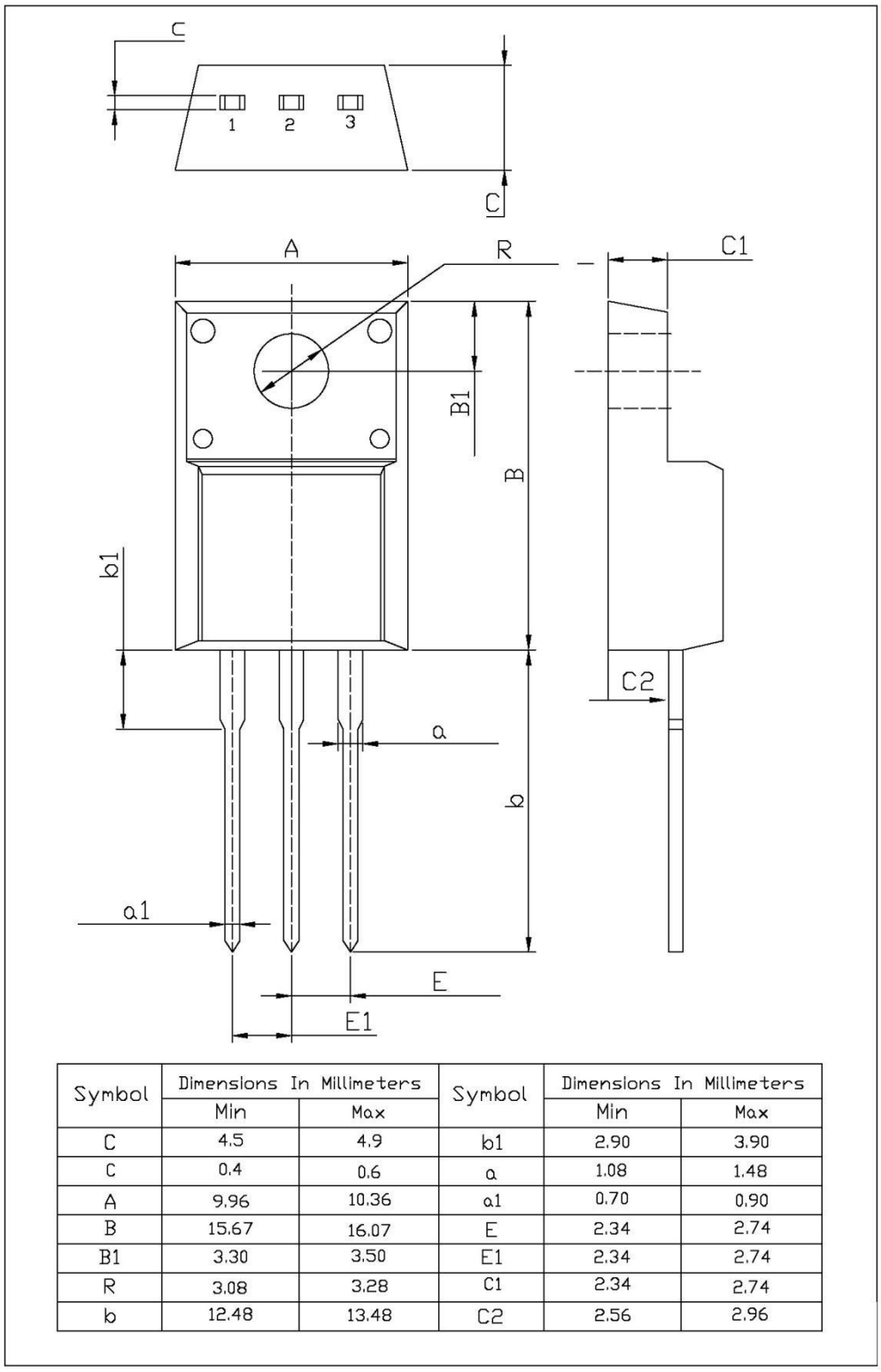
Packaging SPEC.

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



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
C	4.5	4.9	b1	2.90	3.90
c	0.4	0.6	a	1.08	1.48
A	9.96	10.36	a1	0.70	0.90
B	15.67	16.07	E	2.34	2.74
B1	3.30	3.50	E1	2.34	2.74
R	3.08	3.28	C1	2.34	2.74
b	12.48	13.48	C2	2.56	2.96