/ Descriptions

TO-220F N MOS

N-CHANNEL MOSFET in a TO-220F Plastic Package.

/ Features

V_{DS}=200V I_D=18A V_{GS}=±20V

$R_{DS(on)}$@10V≤170mΩ(Type.130mΩ)

$R_{DS(on)}$@4.5V≤200mΩ(Type.150mΩ)

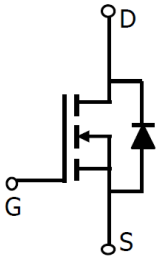
HF Product.

/ Applications

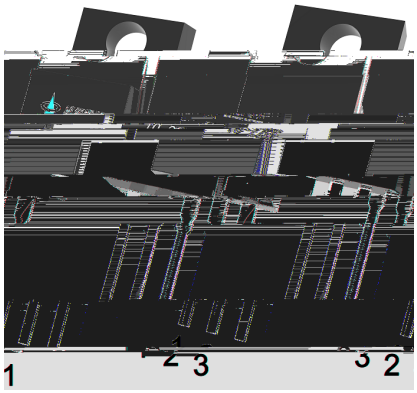
LED

Networking,Load Switch,LED applications.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

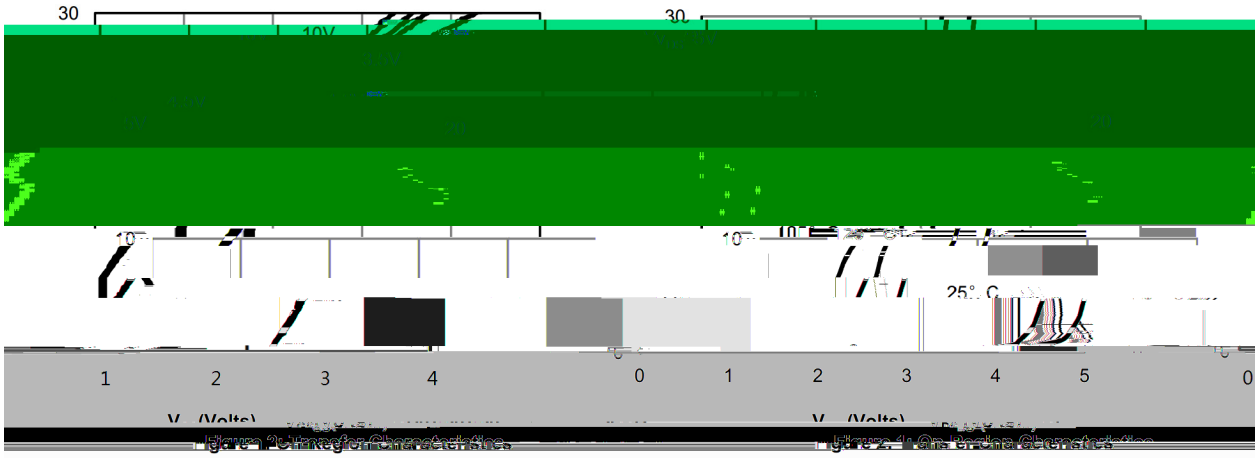
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	200	V
Drain Current		I_D(Tc=25)	18	A
Drain Current - Pulsed		I_{DM}	28	A
Gate-Source Voltage		V_{GS}	±20	V
Single Pulsed Avalanche Energy(L=10mH)		E_{AS}	125	mJ
Avalanche Current(L=10mH)		I_{AS}	9.5	A
Power Dissipation		P_D(Tc=25)	50	W
Operating and Storage Temperature Range		T_J,T_{STG}	-55 to 150	
Maximum Junction-to-Ambient	t ≤ 10s	$R_{\theta JA}$	30	/W
Maximum Junction-to-Ambient	Steady-State		62.5	
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	2.5	

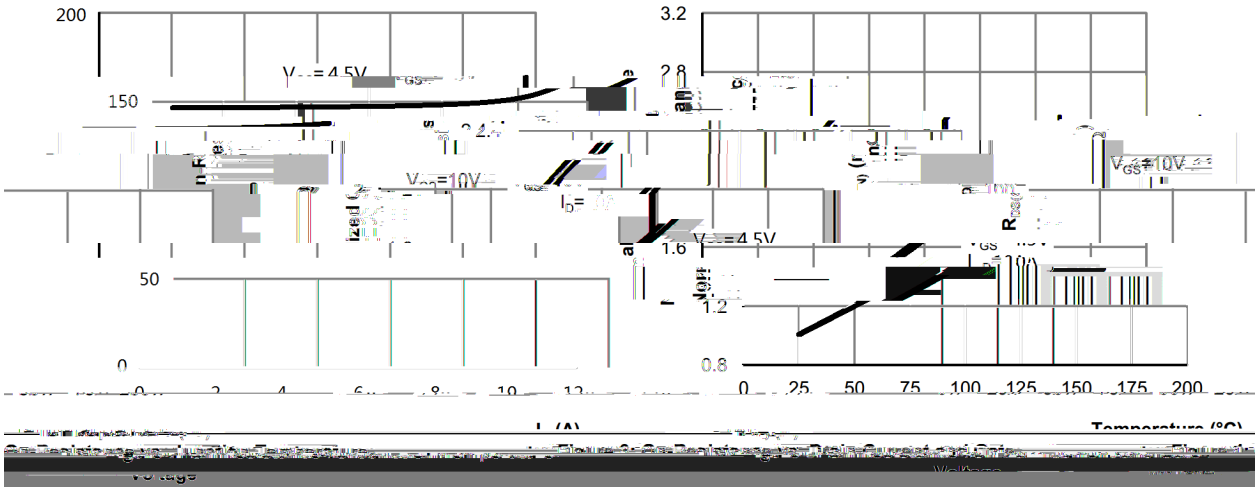
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	200			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=200V V_{GS}=0V			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	1.0	1.5	2.0	V
Total gate charge	$R_{DS(on)}$	V_{GS}=10V I_D=10A		130	170	mΩ
		V_{GS}=4.5V I_D=10A		150	200	mΩ
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=1A			1.2	V
Gate resistance	R_g	VGS=0V VDS=0V, f=1MHz		6.5		Ω
Input Capacitance	C_{iss}	VDS=25V VGS=0V f=1MHz		830		pF
Output Capacitance	C_{oss}			150		
Reverse Transfer Capacitance	C_{rss}			65		
Total Gate Charge	$Q_{g(10V)}$	VGS=10V, VDS=100V, ID=18A		27		nC
Total Gate Charge	$Q_{g(4.5V)}$			12		
Gate Source Charge	Q_{gs}			7		
Gate Drain Charge	Q_{gd}			3		

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$			8		
Turn-On Rise Time	t_r	V_{GS}=10V V_{DS}=75V		10		ns
Turn-Off Delay Time	t	R_L=2.5Ω R_{GEN}=3Ω				

/ Electrical Characteristic Curve





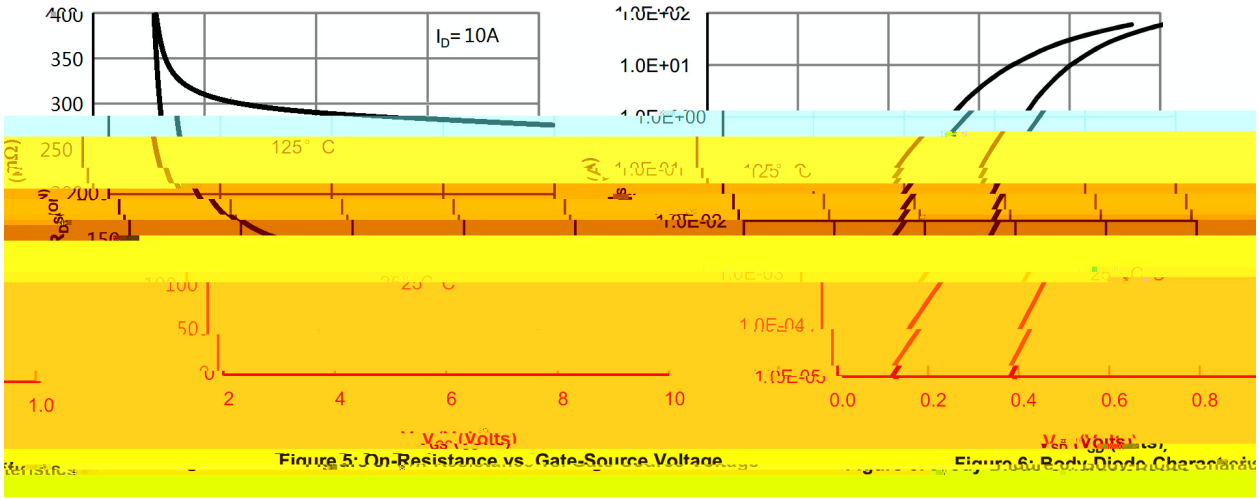


Figure 5: On-Resistance vs. Gate-Source Voltage

Figure 6: Body Diode Characteristics

/ Electrical Characteristic Curve

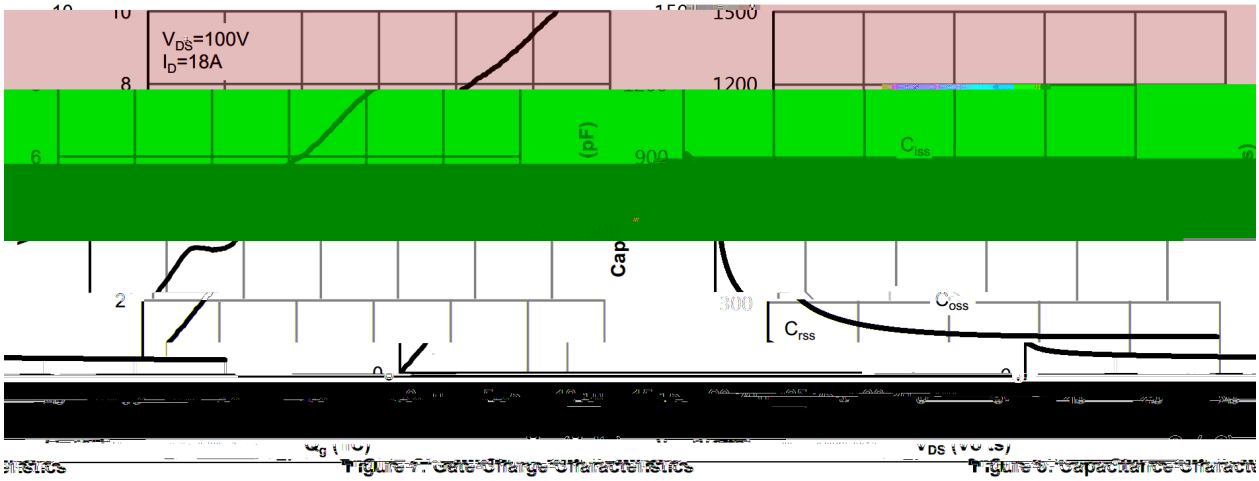


Figure 7. Gate Charge Characteristics

Figure 8. Capacitance Characteristics

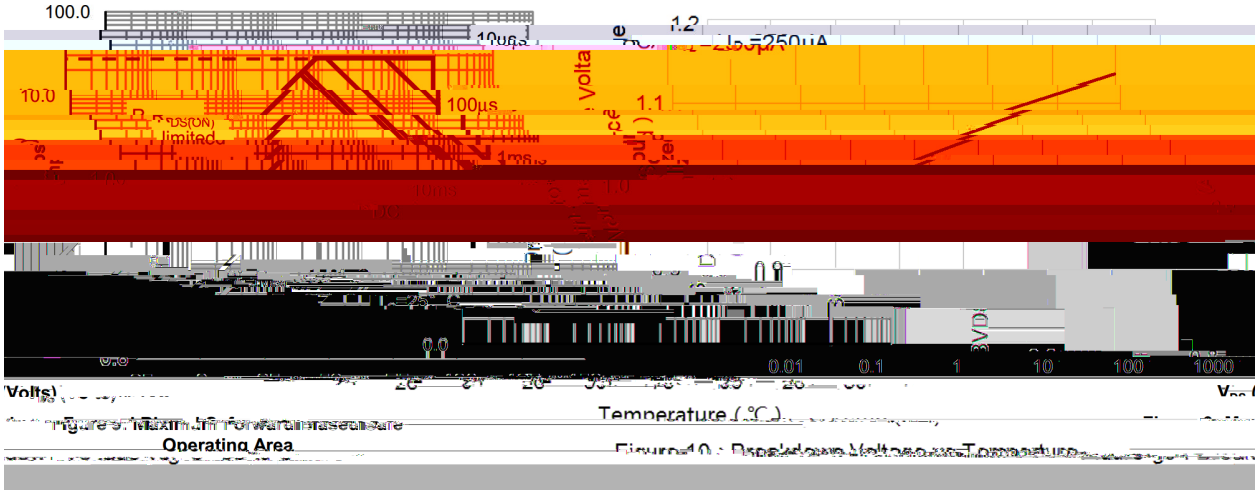
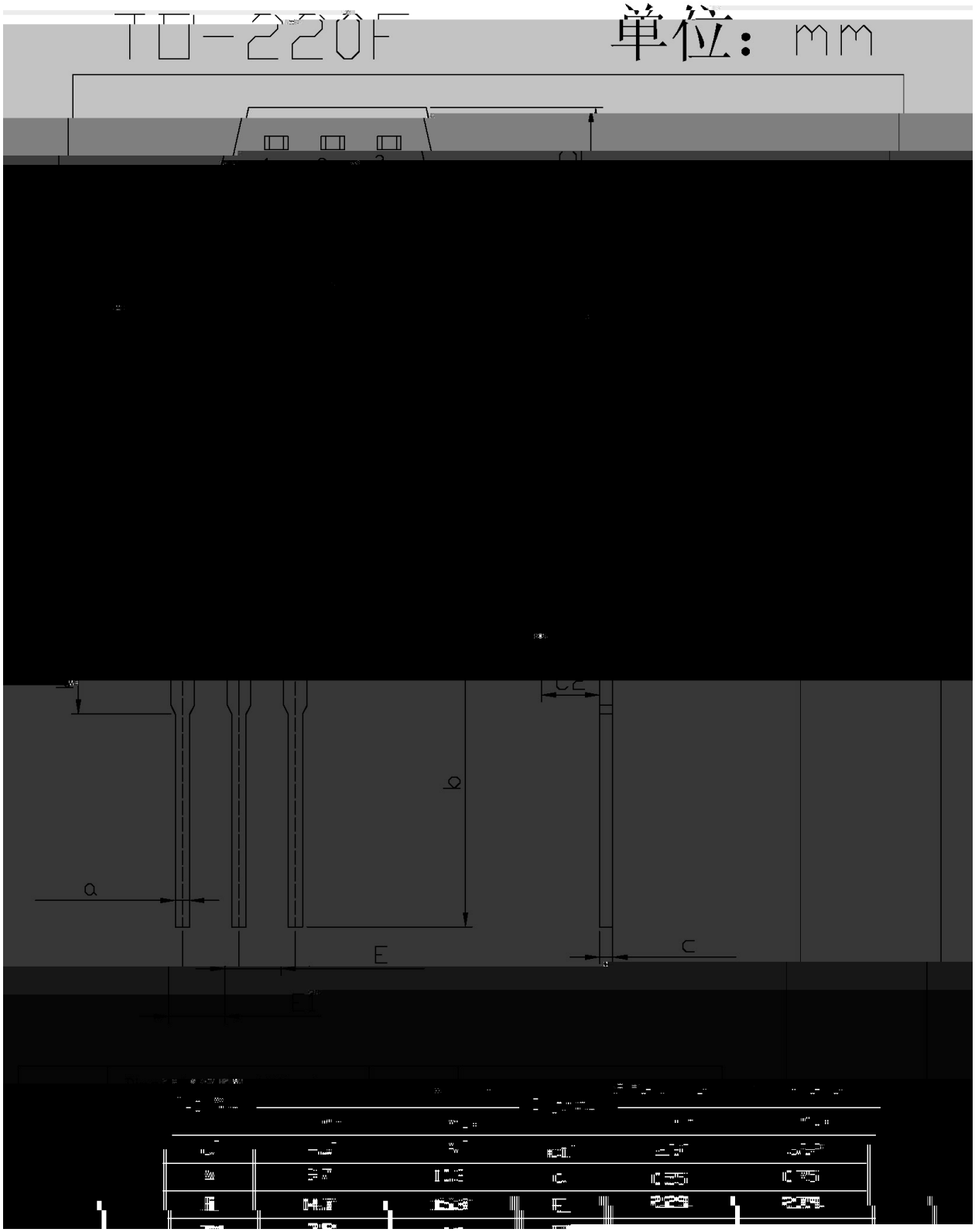


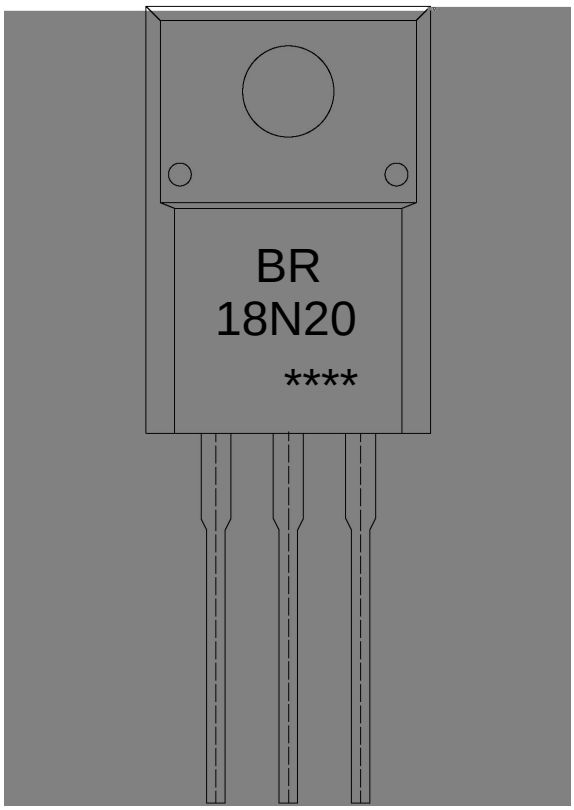
Figure 9. Maximum Forward Biased Safe Operating Area

Figure10. Breakdown Voltage vs. Temperature

/ Package Dimensions



/ Marking Instructions



BR

18N20

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Note:

BR:	Company Code
18N20:	Product Type Code
****:	Lot No. Code, code change with Lot No.

( ) / Temperature Profile for Dip Soldering(Pb-Free)

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