/ Descriptions

N TO-220

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

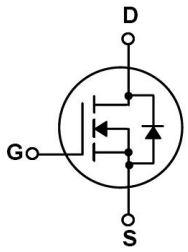
/ Features

Low $R_{DS(on)}$,low gate charge, low C_{rss}, fast switching,HF Product.

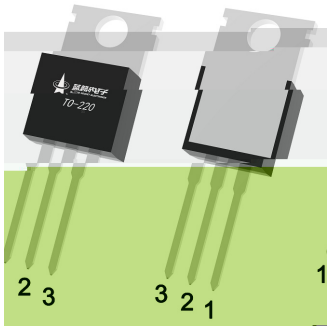
/ Applications

Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products.

/ 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}	60	V
Drain Current		I_D(Tc=25)	60	A
Drain Current - Pulsed		I_{DM}	225	A
Gate-Source Voltage		V_{GS}	±20	V
Avalanche Current		I_{AS}	20	A
Single Pulsed Avalanche Energy		E_{AS}	170	mJ
Power Dissipation		P_D(Tc=25)	96	W
Storage Temperature Range		T_{stg}	-55 150	
Thermal Resistance-Junction to Ambient	t ≤ 10s	$R_{\theta JA}$	15	/W
	Steady-State		62	
Thermal Resistance-Junction to Case	Steady-State	$R_{\theta JC}$	1.3	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	60	63		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V V_{GS}=0V			1.0	μA
		V_{DS}=48V T_C=150			10	
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	1	1.6	3	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=25A		10.5	15	mΩ
		V_{GS}=4.5V I_D=18A		13.5	20	
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=25A			1.25	V
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V, f=1MHz		1.49		Ω
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		1010		pF
Output Capacitance	C_{oss}			250		
Reverse Transfer Capacitance	C_{rss}			280		
Total Gate Charge	Qg(10V)	V_{GS}=10V V_{DS}=30V I_D=20A		22		nC
Total Gate Charge	Q_g(4.5V)			8.7		
Gate Source Charge	Q_{gs}			5.5		
Gate Drain Charge	Q_{gd}			2.6		

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=30V R_L=1.5Ω R_{GEN}=3Ω		8.9		ns
Turn-On Rise Time	t_r			3.7		
Turn-Off Delay Time	$t_{d(off)}$			25		
Turn-Off Fall Time	t_f					

/ Electrical Characteristic Curve

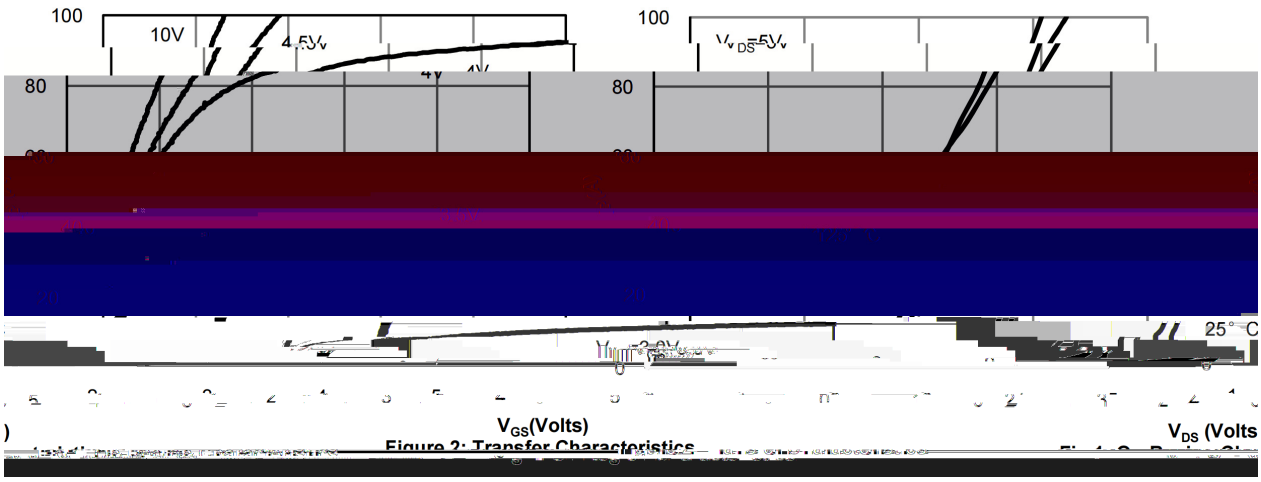
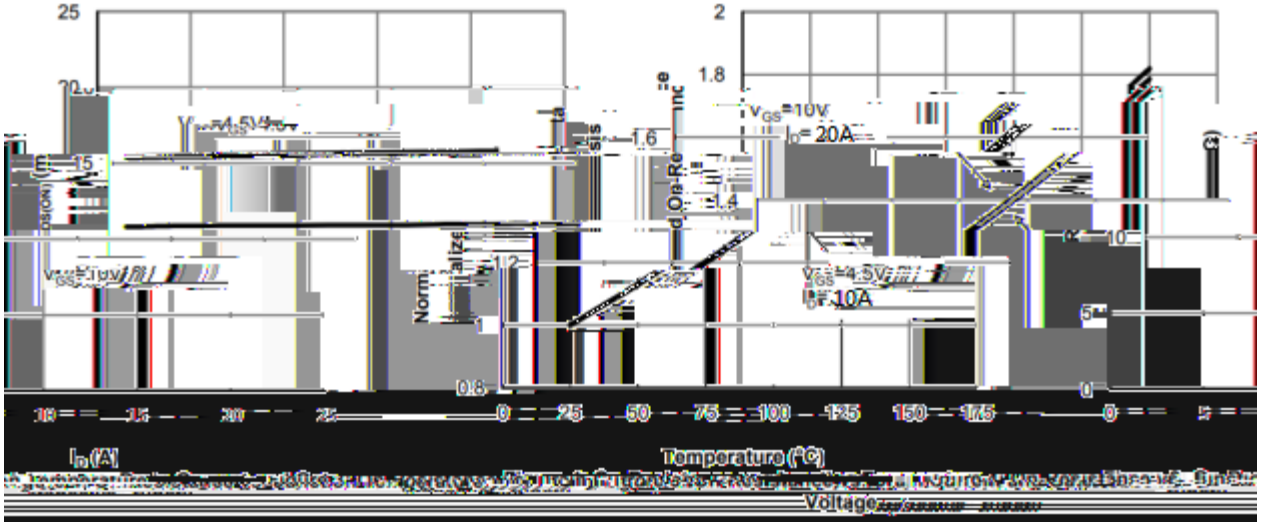
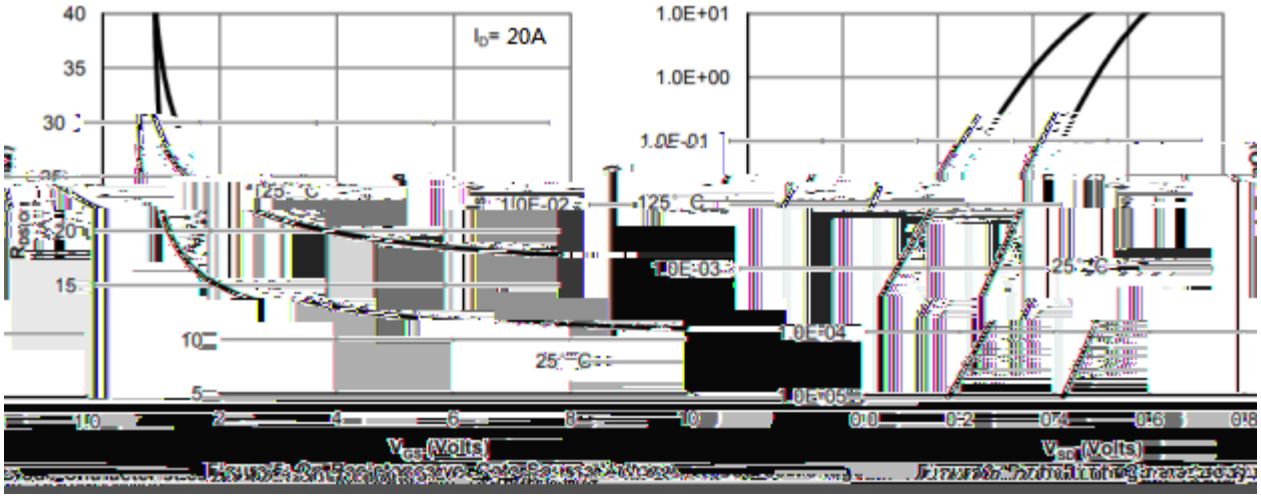
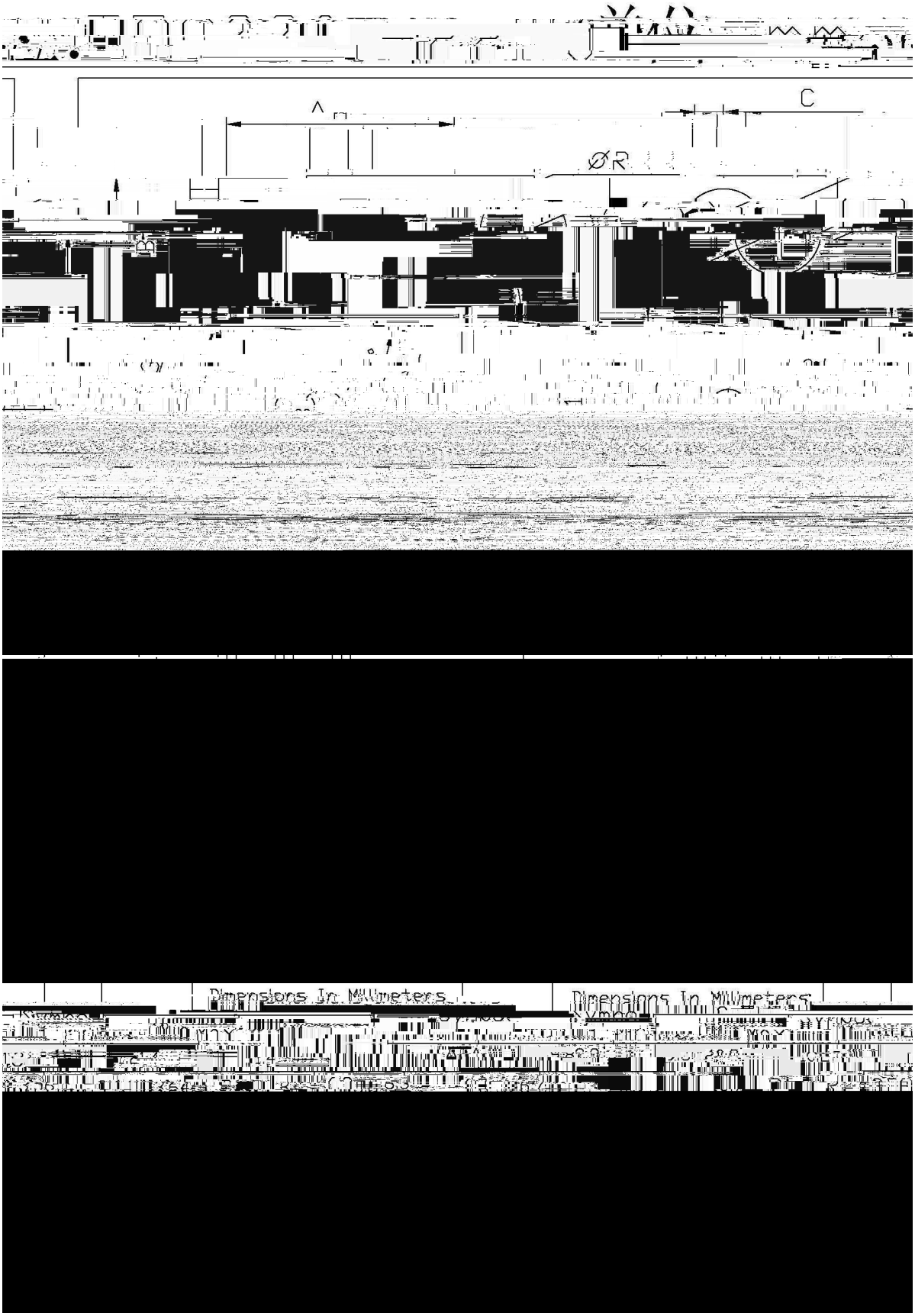


Figure 2: Transfer Characteristics

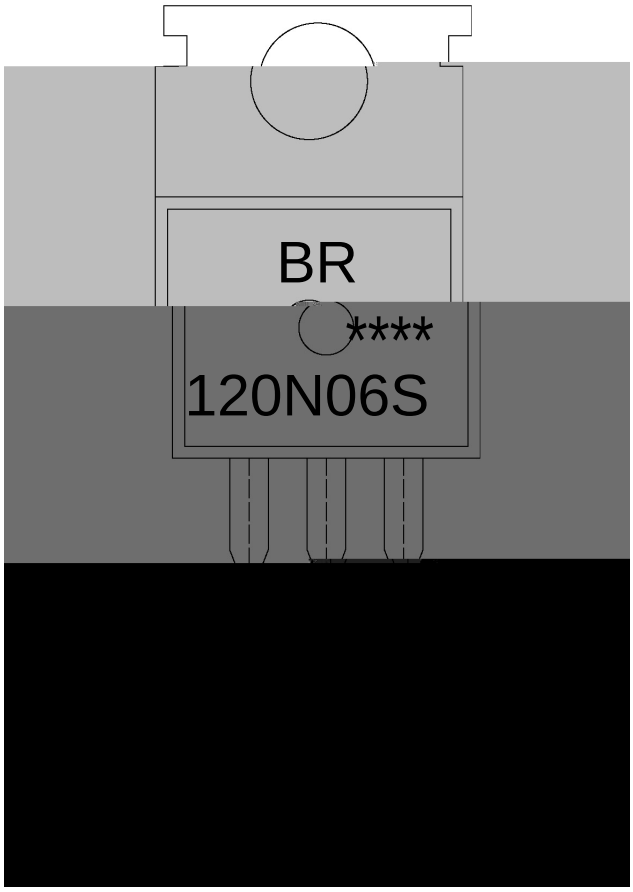




/ Package Dimensions



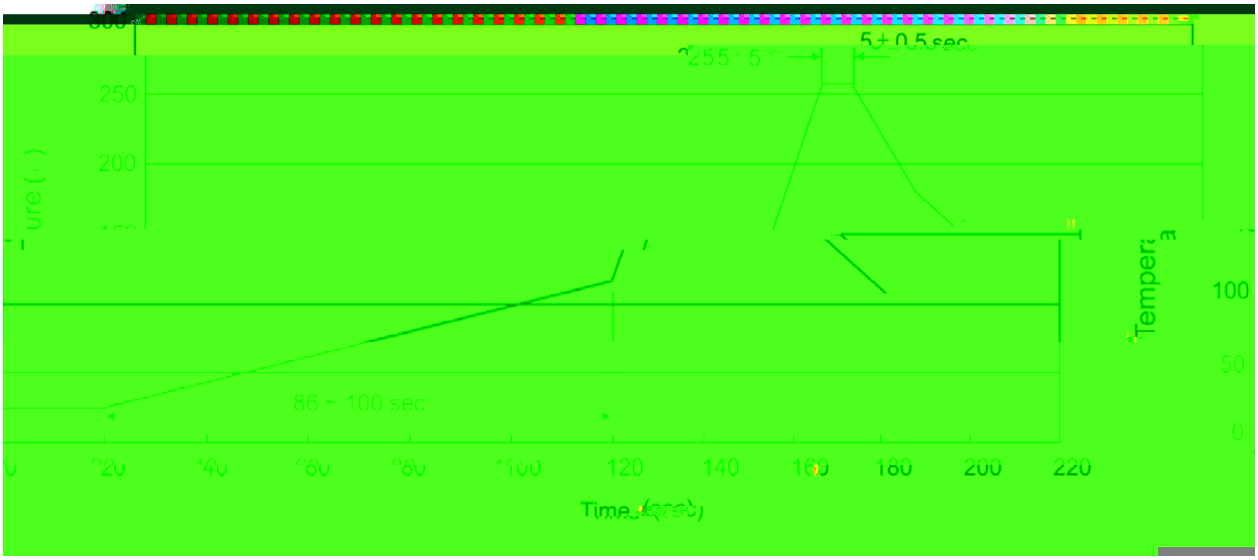
/ Marking Instructions



Note:

BR:	Company Code
120N06S:	Product Type
****:	Lot No. Code, code change with Lot No

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



	Note:
1 25 150 60 90sec;	1.Preheating:25~150 , Time:60~90sec.
2 255 5 5 0.5sec;	2.Peak Temp.:255 5 , Duration:5 0.5sec.
3 2 10 /sec.	3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

270 5	10 1 sec.	Temp.:270±5	Time:10±1 sec

/ Packaging SPEC.

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