

**BR40P03**  
Rev.F Jul.-2018



TO-220      P      MOS      P-CHANNEL MOSFET in a TO-220 Plastic Package.

Low On-Resistance, High Current, High Speed switching, fast switching.

LED      DC/DC      DC/AC

**/ Absolute Maximum Ratings(Ta=25 )**

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Drain Current	$I_D(T_C=25)$	-40	A
Drain Current	$I_D(T_C=100)$	-20	A
Pulsed Drain Current	$I_{DM}$	-120	A
Gate-Source Voltage	$V_{GS}$	$\pm 25$	V
Avalanche Current	$I_{AS}$	62	A
Total Power Dissipation	$P_D(T_C=25)$	80	W
Junction Temperature Range	$T_j$	-55 150	
Storage Temperature Range	$T_{stg}$	-55 150	
Thermal Resistance Junction-Ambient	$R_{JA}$	65	/W
Thermal Resistance Junction-Case	$R_{JC}$	3.72	/W

**/ Electrical Characteristics(Ta=25 )**

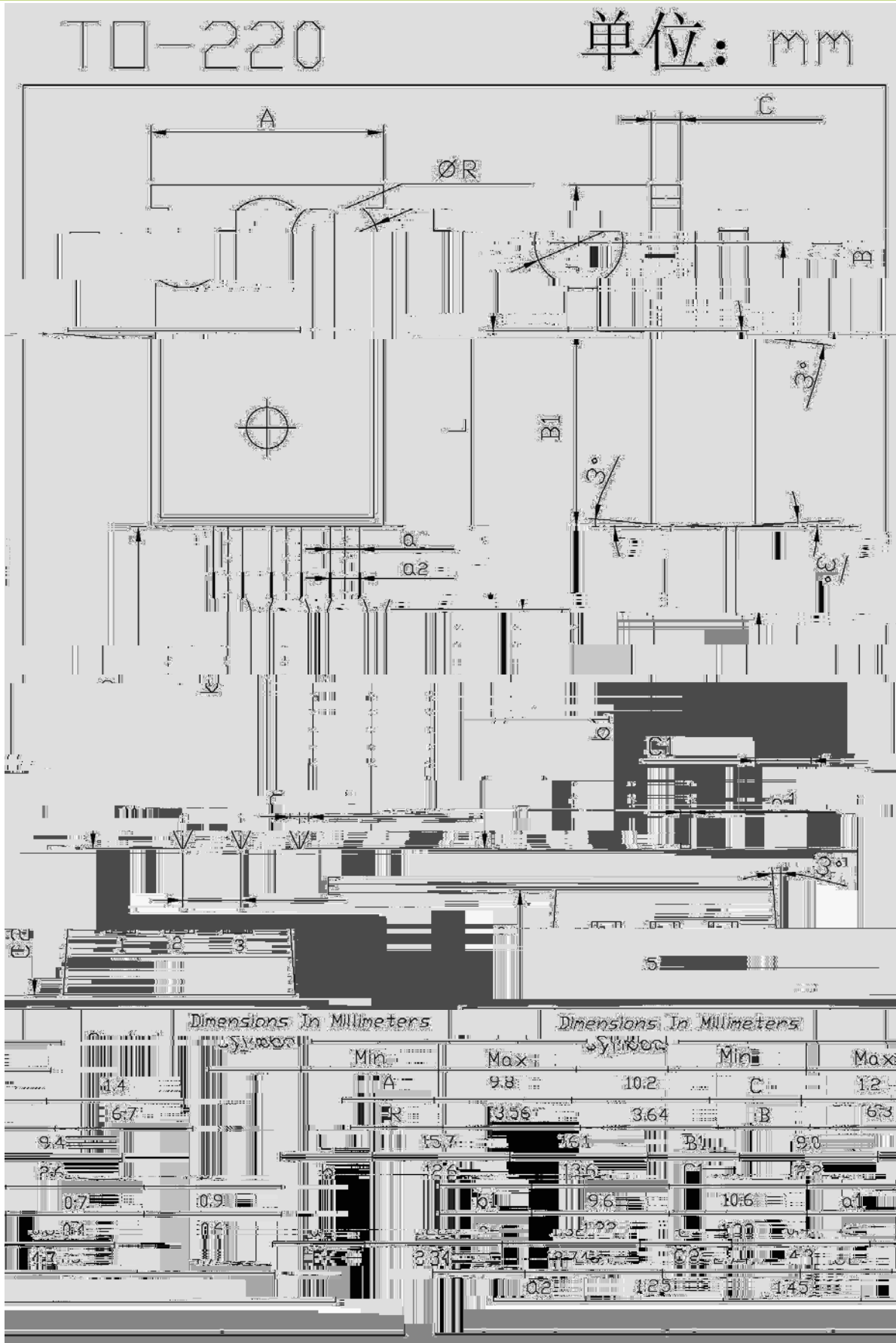
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Zero Gate Voltage Drain Current	$BV_{DSS}$	$V_{GS}=0V$ $I_D=-250$ A	-30			V
BVDSS Temperature Coefficient	$\frac{BV_{DSS}}{T_J}$	$I_D=-1mA$ $T_a=25$		-0.01		V/
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V$ $I_D=-24A$			14	m
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-30V$ $V_{GS}=0V$			-1.0	A
		$V_{DS}=-24V$ $T_C=150$			-25	
Gate-Body Leakage Current Forward	$I_{GSS}$	$V_{GS}=\pm 25V$ $V_{DS}=0V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250$ A	-1		-3	V
Forward Transconductance	$g_{fs}$	$V_{DS}=-10V$ $I_D=-24V$		35		S
Total Gate Charge	$Q_g$	$V_{DS}=-24A$ $I_D=-24V$ $V_{GS}=-4.5V$		30	55	nC
Gate-Source Charge	$Q_{gs}$			6		
Gate-Drain Charge	$Q_{gd}$			25		
Input Capacitance	$C_{iss}$	$V_{DS}=-25V$ $V_{GS}=0V$ $f=1.0MHz$		2200	3395	pF
Output Capacitance	$C_{oss}$			635		
Reverse Transfer Capacitance	$C_{rss}$			560		



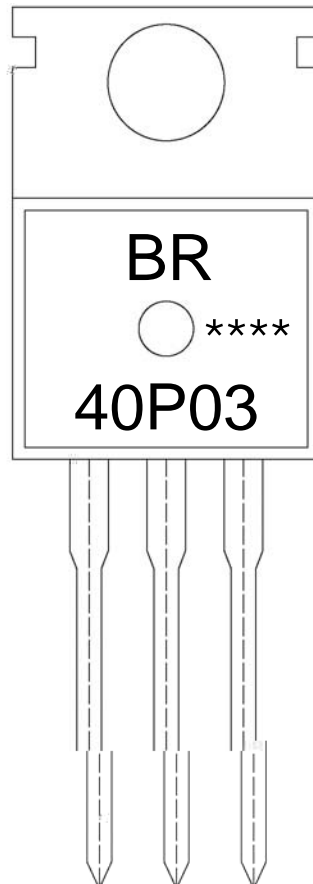
**/ Electrical Characteristics(Ta=25 )**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-15V$ $I_D=-24A$ $R_G=3.3$ $V_{GS}=-10V$ $R_D=0.63$		10		ns
Rise Time	$t_r$			65		
Turn-Off Delay Time	$t_{d(off)}$			60		
Fall Time	$t_f$			100		
Reverse Recovery Time <sup>2</sup>	$t_{rr}$	$V_{GS}=0V$ $I_S=-24A$ $di/dt=-100A/s$		39		nC
Reverse Recovery Charge	$Q_{rr}$			38		
Diode Forward Voltage <sup>2</sup>	$V_{SD}$	$V_{GS}=0V$ $I_S=-24A$ $T_J=25$			-1.2	V

/ Package Dimensions



**/ Marking Instructions**



BR

40P03

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Note:

BR: Company Code

40P03: Product Type.

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

