/ Revised record

F	2018-7				
G	2019-11-30	2	RDSON 上限由原来的 22mR 改为 27mR		
H	2022-7-9	2 3	庞隆基申请 RDSON 上限由原来的 27mR 改为 35mR（典型值 18 改成 30），更新曲线图		

/ Descriptions

TO-220 P MOS

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

/ Features

$R_{DS(on)}$ C_{rss}

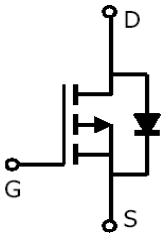
Low $R_{DS(on)}$,low gate charge, low C_{rss}, fast switching.

/ Applications

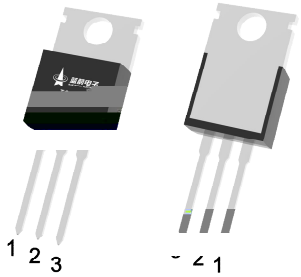
DC/DC

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)

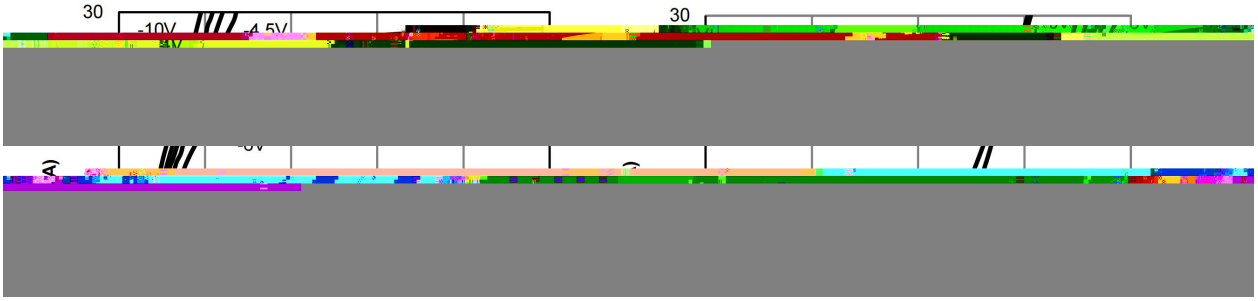
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-60	V
Drain Current		I_D(Tc=25℃)	-50	A
Drain Current - Pulsed		I_{DM}	-200	A
Gate-Source Voltage		V_{GS}	±20	V
Power Dissipation		P_D(Tc=25℃)	118	W
Single Pulsed Avalanche Energy		E_{AS}	250	mJ
Avalanche Current(L=0.5mH)		I_{AS}	25	A
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	℃
Thermal resistance, junction - ambient	t ≤ 10s	$R_{\theta JA}$	15	℃/ W
	Steady-State		60	
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	1.1	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250μA	-60	-68		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=-20A		30	35	mΩ
	$R_{DS(on)}$	V_{GS}=-4.5V I_D=-10A		40	45	mΩ
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=-1A			-1.2	V
Gate resistance	Rg			10		Ω
Input Capacitance	C_{iss}	V_{DS}=-25V V_{GS}=0V f=1.0MHz		3200		pF
Output Capacitance	C_{oss}			800		pF
Reverse Transfer Capacitance	C_{rss}			270		pF
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=-10V, V_{DS}=-30V, I_D=-20A		45		nC
Total Gate Charge	$Q_{g(4.5V)}$			23		
Gate Source Charge	Q_{gs}			9.3		
Gate Drain Charge	Q_{gd}			10.2		nC

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=-10V V_{DS}=-30V R_L=1.5 R_{GEN}=3 Ω		12		ns
Turn-On Rise Time	t_r			14.5		
Turn-Off Delay Time	$t_{d(off)}$			38		
Turn-Off Fall Time	t_f			15		

/ Electrical Characteristic Curve



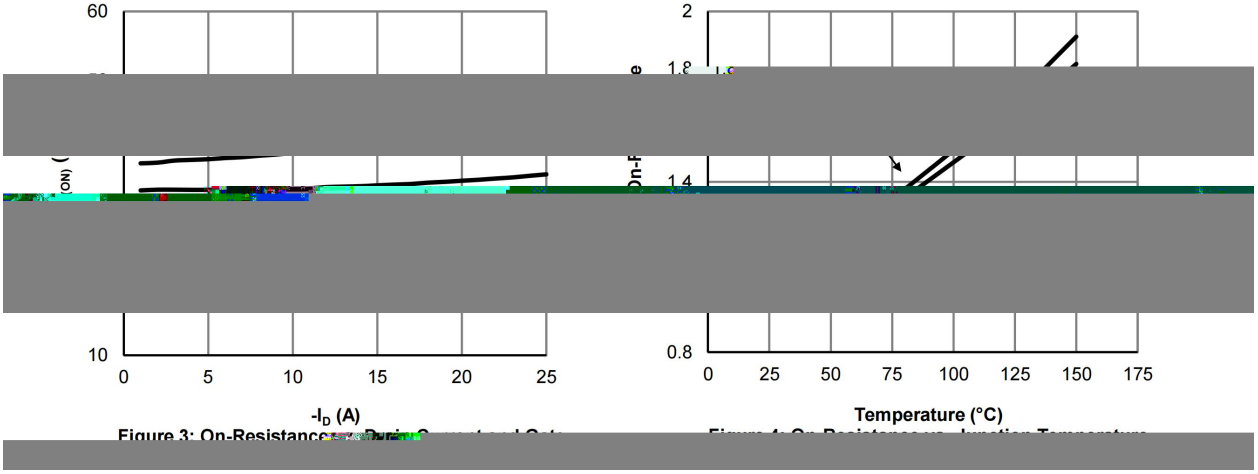
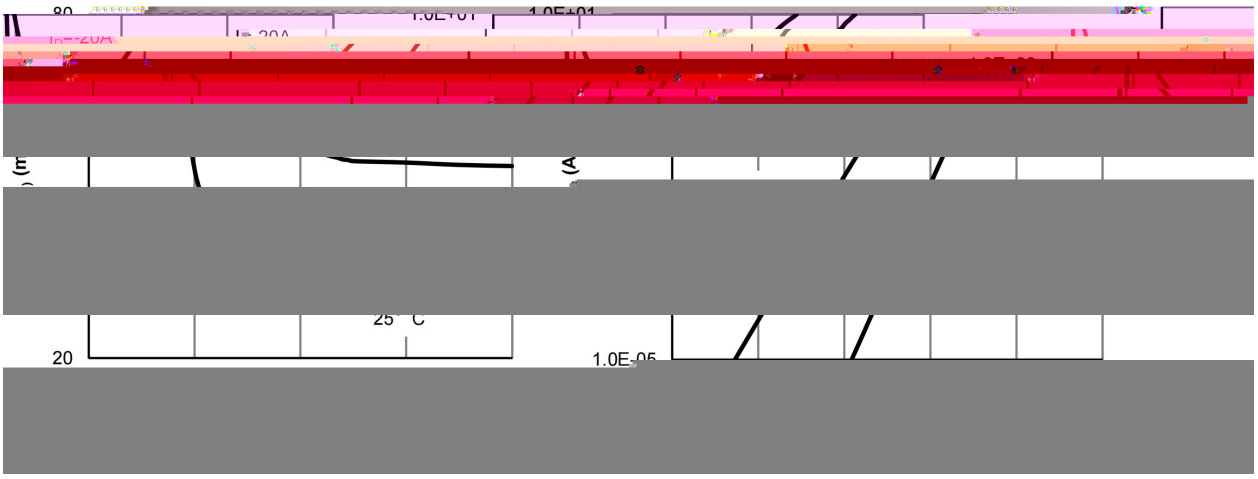
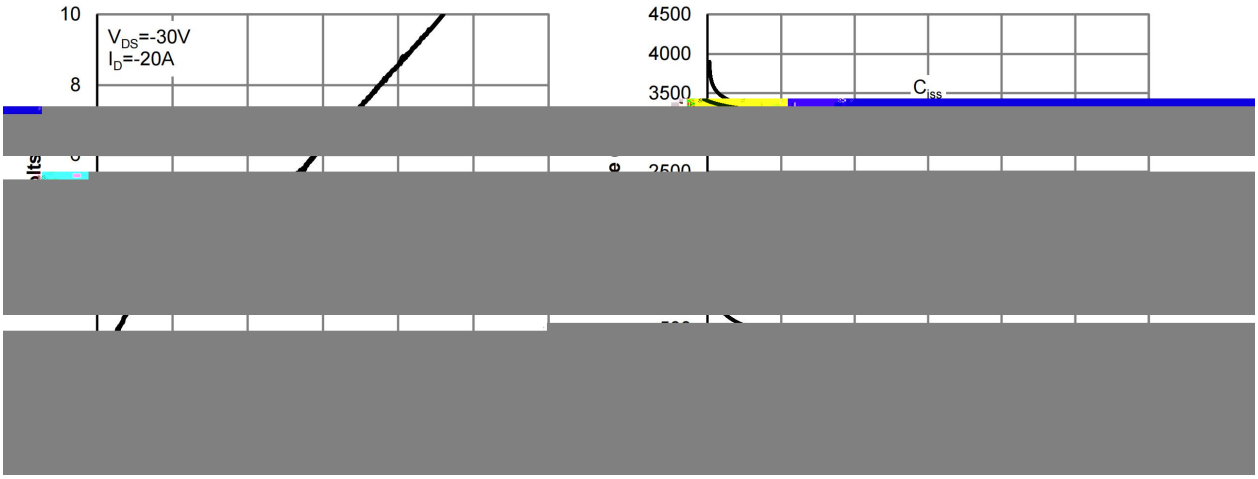
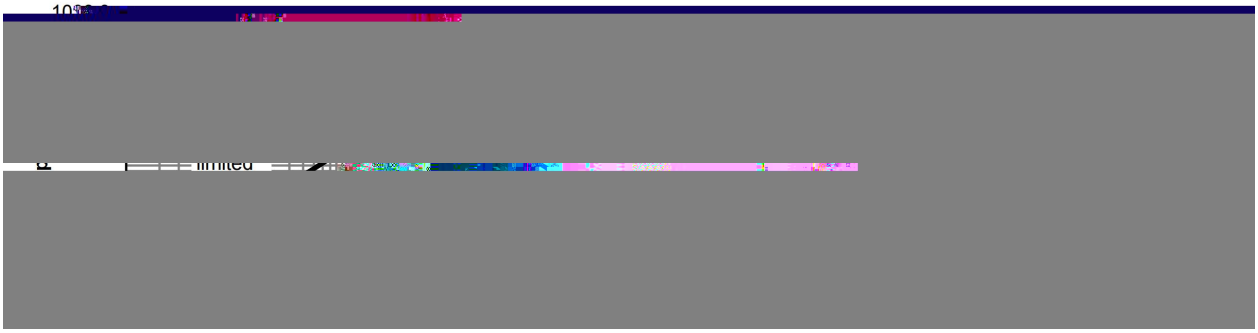


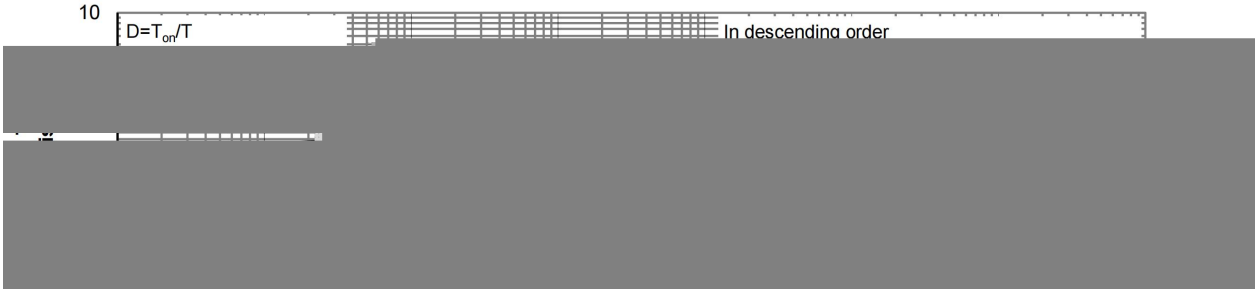
Figure 3: On-Resistance vs. Drain Current and Gate



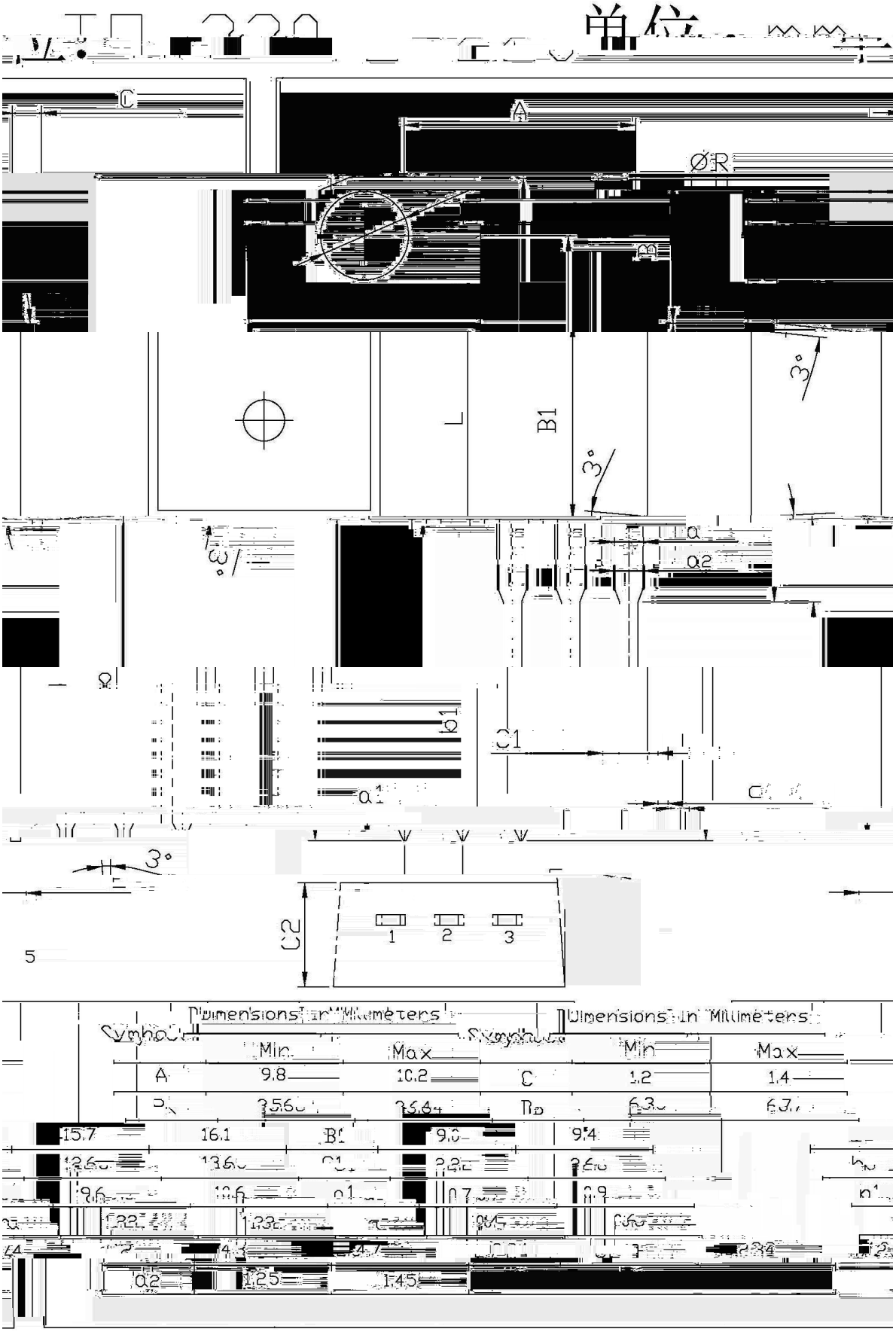
/ Electrical Characteristic Curve





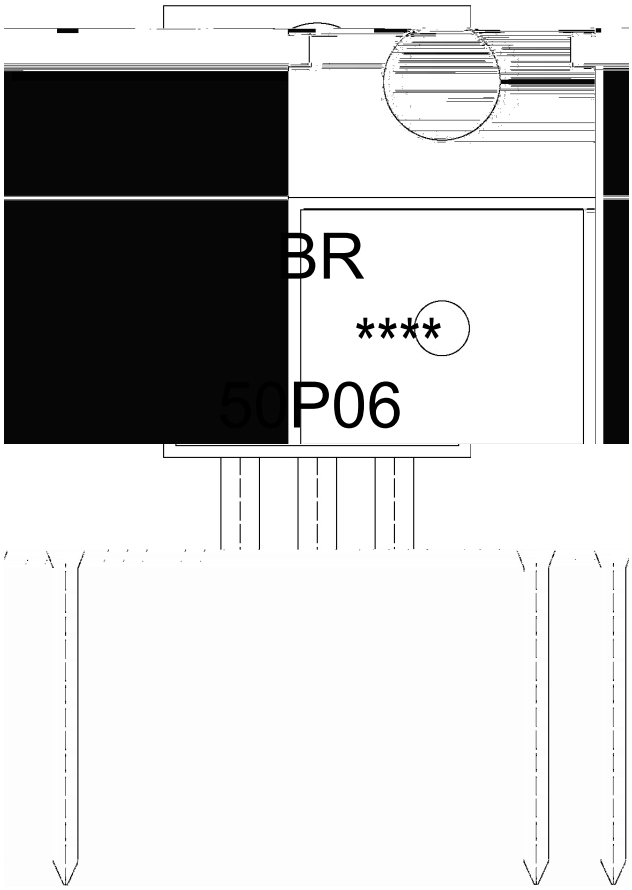


/ Package Dimensions



Dimensions in Millimeters			Dimensions in Millimeters		
Symbol	Min.	Max	Symbol	Min	Max
A	9.8	10.2	C	1.2	1.4
	15.7	16.1	B1	9.0	9.4
	12.6	13.6	C1	2.2	2.6
	9.6	10.6	a1	1.7	1.9
	4.2	4.3		4.7	
	0.2	1.25		1.45	

/ Marking Instructions



BR

50P06

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Note:

BR:	Company Code
50P06:	Product Type
****:	Lot No. Code, code change with Lot No