

/ 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.

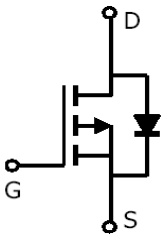
**/ Features**

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

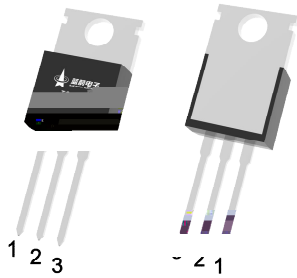
**/ Applications**

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 )**

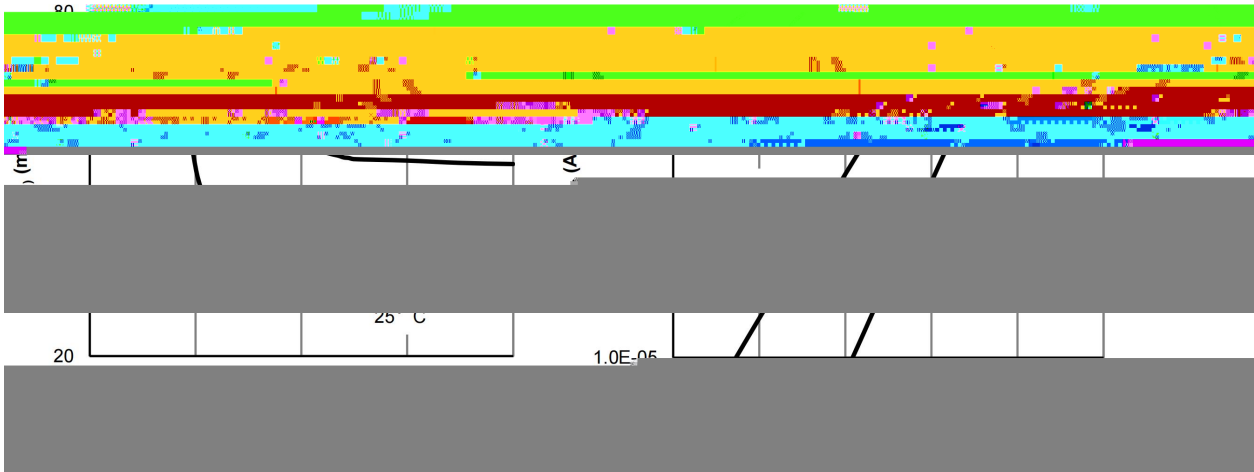
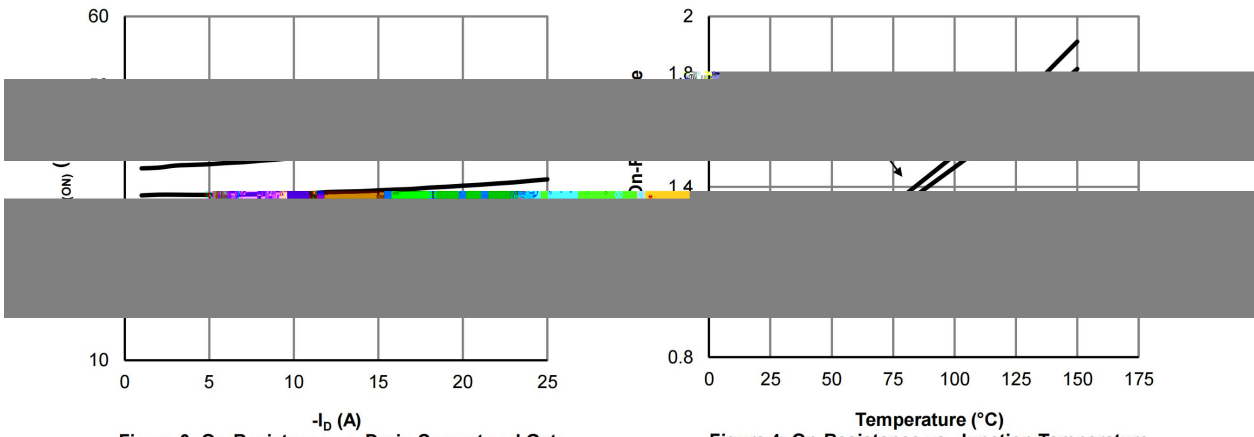
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DS</sub>	-60	V
Drain Current	I <sub>D</sub> (Tc=25°C)	-50	A
Drain Current - Pulsed	I <sub>DM</sub>	-200	A
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Power Dissipation	P <sub>D</sub> (Tc=25°C)	118	W
Single Pulsed Avalanche Energy	E <sub>AS</sub>	250	mJ
Avalanche Current(L=0.5mH)	I <sub>AS</sub>	25	A
Junction and Storage Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	-55 to 150	°C
Thermal resistance, junction - ambient	t ≤ 10s	R <sub>θJA</sub>	15
	Steady-State		60
Thermal resistance, junction - case	Steady-State	R <sub>θJC</sub>	1.1

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V I <sub>D</sub> =-250μA	-60	-68		V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-60V V <sub>GS</sub> =0V			-1.0	μA
		V <sub>DS</sub> =-48V T <sub>C</sub> =150°C			-10	
Gate-Body Leakage Current Forward	I <sub>GSS</sub>	V <sub>GS</sub> =±20V V <sub>DS</sub> =0V			±0.1	μA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =-250μA	-1	-1.6	-3	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-10V I <sub>D</sub> =-20A		30	35	mΩ
	R <sub>DS(on)</sub>	V <sub>GS</sub> =-4.5V I <sub>D</sub> =-10A		40	45	mΩ
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V I <sub>S</sub> =-1A			-1.2	V
Gate resistance	R <sub>g</sub>			10		Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-25V V <sub>GS</sub> =0V f=1.0MHz		3200		pF
Output Capacitance	C <sub>oss</sub>			800		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			270		pF
Total Gate Charge	Q <sub>g(10V)</sub>				45	
Total Gate Charge	Q <sub>g(4.5V)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-20A, V <sub>DS</sub> =-30V,		23		
Gate Source Charge	Q <sub>gs</sub>			9.3		
Gate Drain Charge	Q <sub>gd</sub>			10.2		

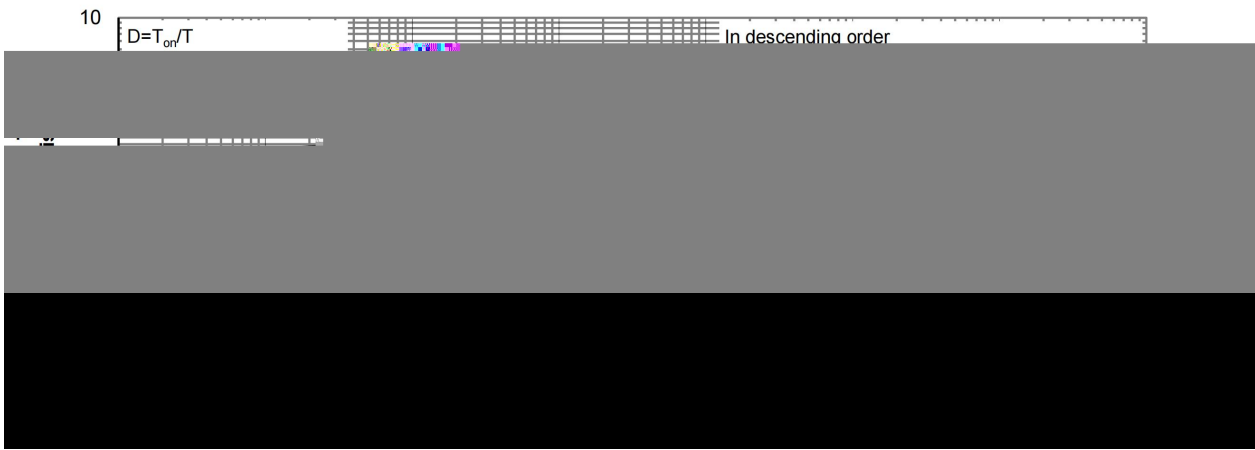
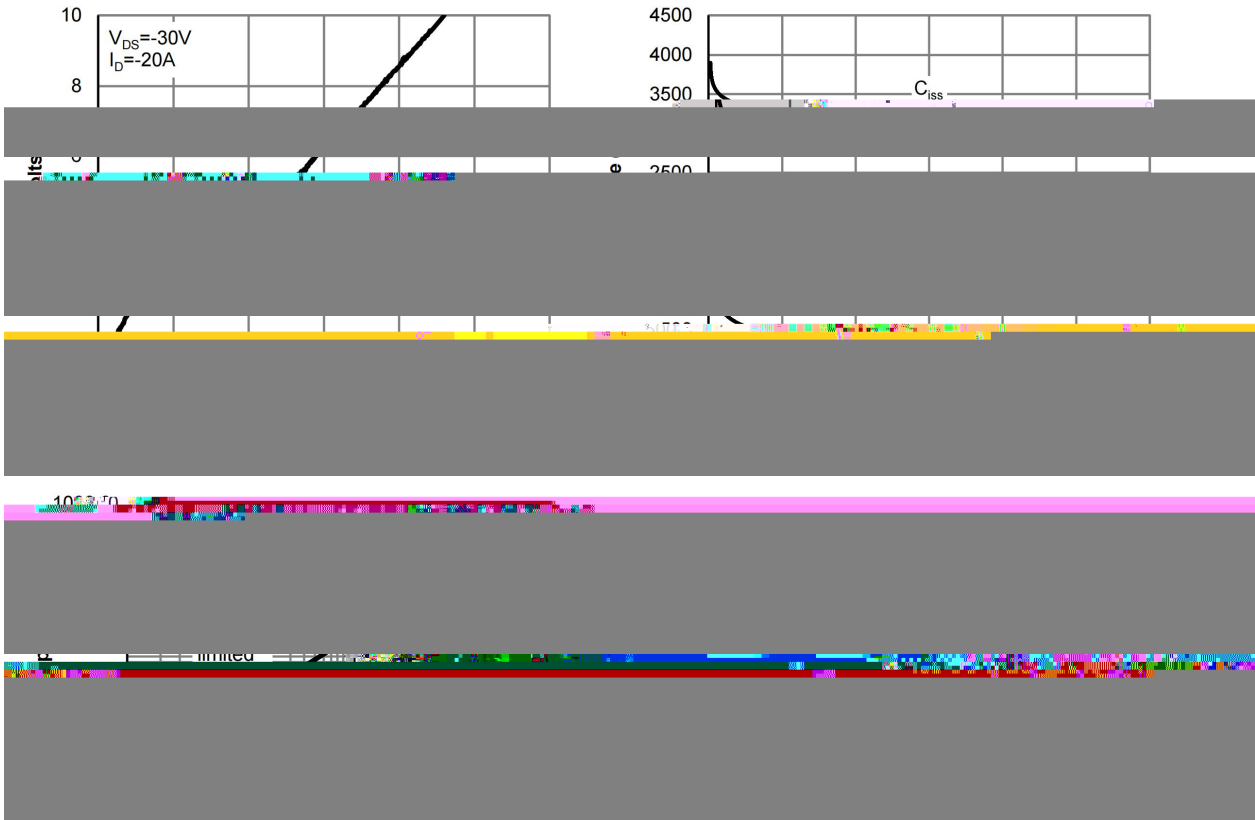
**/ Electrical Characteristics(Ta=25 )**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-10V$ $V_{DS}=-30V R_L=1.5$ $R_{GEN}=3 \Omega$		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		

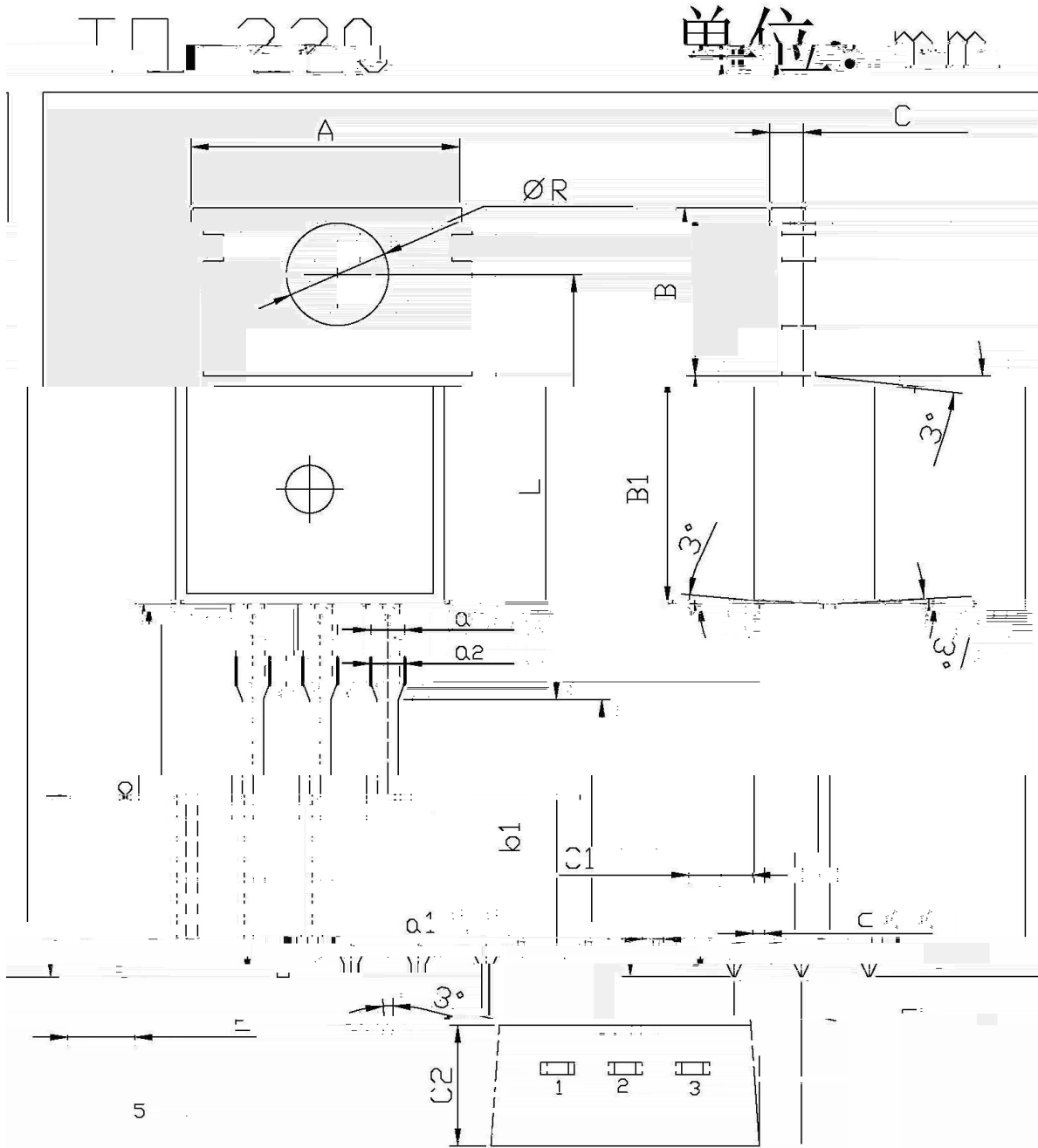
**/ Electrical Characteristic Curve**



/ Electrical Characteristic Curve



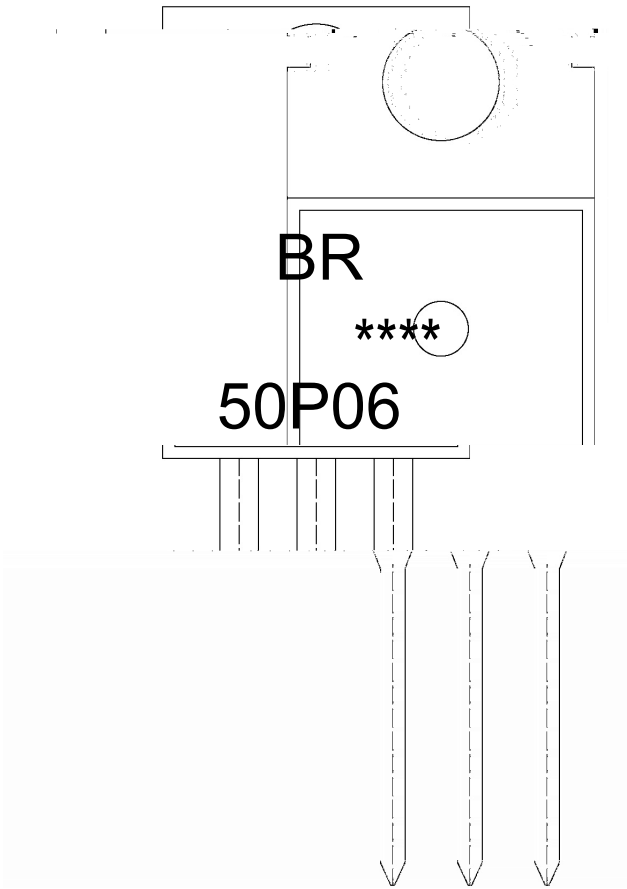
**/ Package Dimensions**



单位: mm

Dimensions In Millimeters		Dimensions In Millimeters			
Symbol	Min	Max	Symbol	Min	Max
$\Delta$	9.8	10.2	C	1.2	1.4
R	3.56	3.64	B	6.3	6.7
B1	15.7	16.1	B1	9.0	9.4
C1	12.6	13.6	C1	2.2	2.6
a	9.6	9.6	a	0.7	0.9
c	0.22	0.32	c	0.4	0.6
Q2	1.47	1.57	Q2	2.44	2.74
Q1	0.2	0.25	Q1	1.45	1.55

**/ Marking Instructions**



BR

50P06

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Note:

BR: Company Code

50P06: Product Type

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

