

/ 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

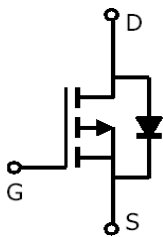
$R_{DS(on)}$ C_{rss}
Low $R_{DS(on)}$, low gate charge, low C_{rss} , fast switching.

/ Applications

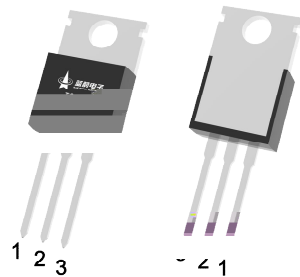
DC/DC

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 n)

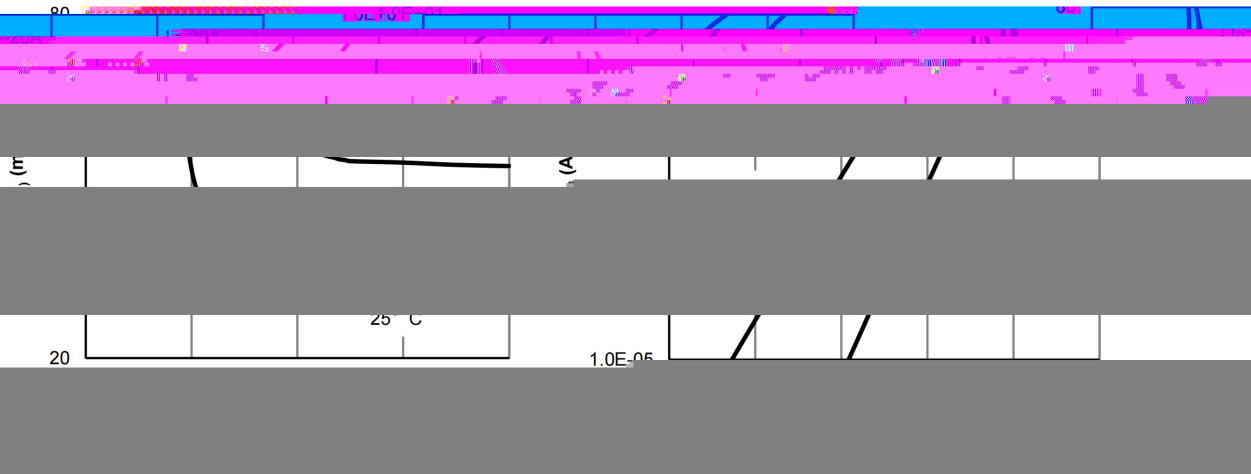
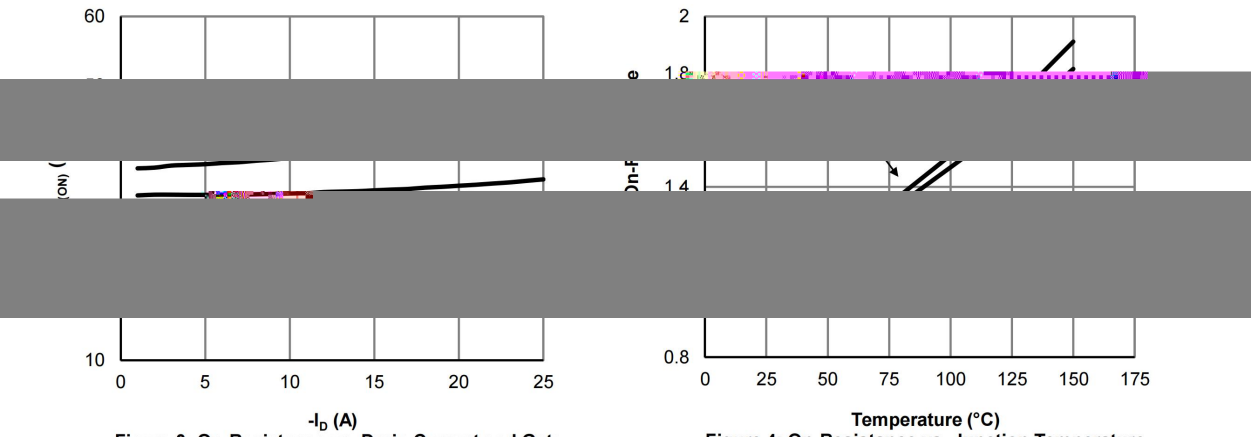
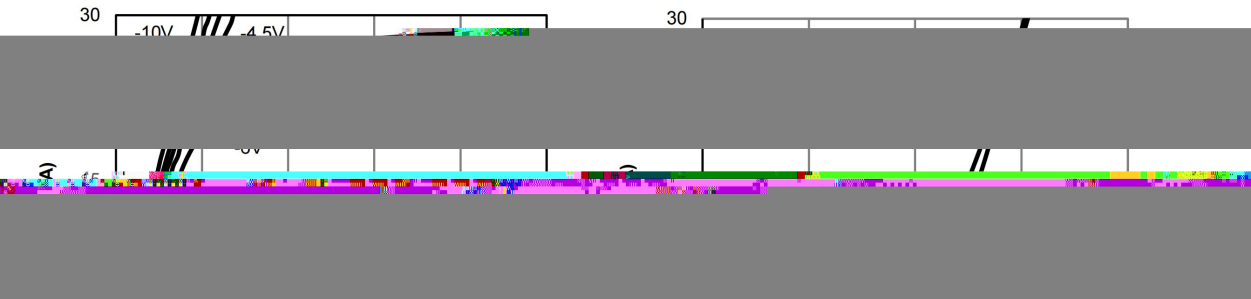
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-60	V
Drain Current		$I_D(T_C=25^{\circ}C)$	-50	A
Drain Current - Pulsed		I_{DM}	-200	A
Gate-Source Voltage		V_{GS}	± 20	V
Power Dissipation		$P_D(T_C=25^{\circ}C)$	118	W
Single Pulsed Avalanche Energy		E_{AS}	250	mJ
Avalanche Current(L=0.5mH)		I_{AS}	25	A
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^{\circ}C$
Thermal resistance, junction - ambient	$t \leq 10s$	$R_{\theta JA}$	15	$^{\circ}C/W$
	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}	$V_{GS}=0V \quad I_D=-250\mu A$	-60	-68		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-60V \quad V_{GS}=0V$			-1.0	μA
		$V_{DS}=-48V \quad T_C=150^{\circ}C$			-10	
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V \quad V_{DS}=0V$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS} \quad I_D=-250\mu A$	-1	-1.6	-3	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V \quad I_D=-20A$		30	35	$m\Omega$
	$R_{DS(on)}$	$V_{GS}=-4.5V \quad I_D=-10A$		40	45	$m\Omega$
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V \quad I_S=-1A$			-1.2	V
Gate resistance	R_g			10		Ω
Input Capacitance	C_{iss}	$V_{DS}=-25V \quad V_{GS}=0V$ $f=1.0MHz$		3200		pF
Output Capacitance	C_{oss}			800		pF
Reverse Transfer Capacitance	C_{rss}			270		pF
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=-10V, \quad V_{DS}=-30V,$ $I_D=-20A$		45		nC
Total Gate Charge F	$Q_{g(4.5V)}$			23		
Gate Source Charge	Q_{gs}			9.3		
Gate Drain Charge	Q_{gd}			10.2		nC

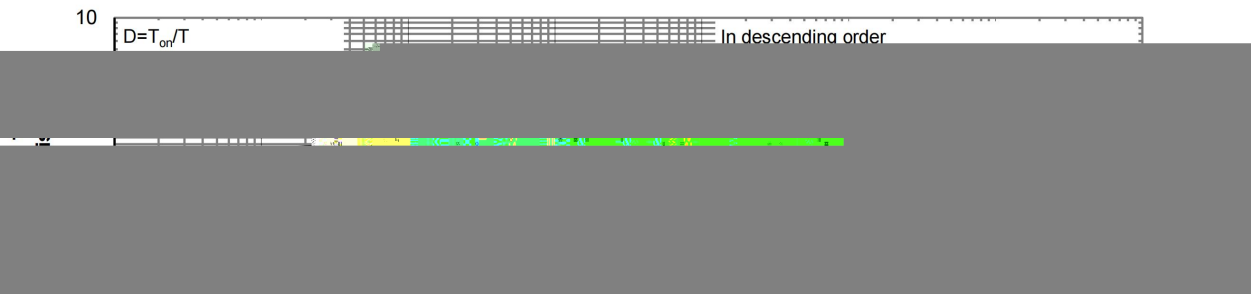
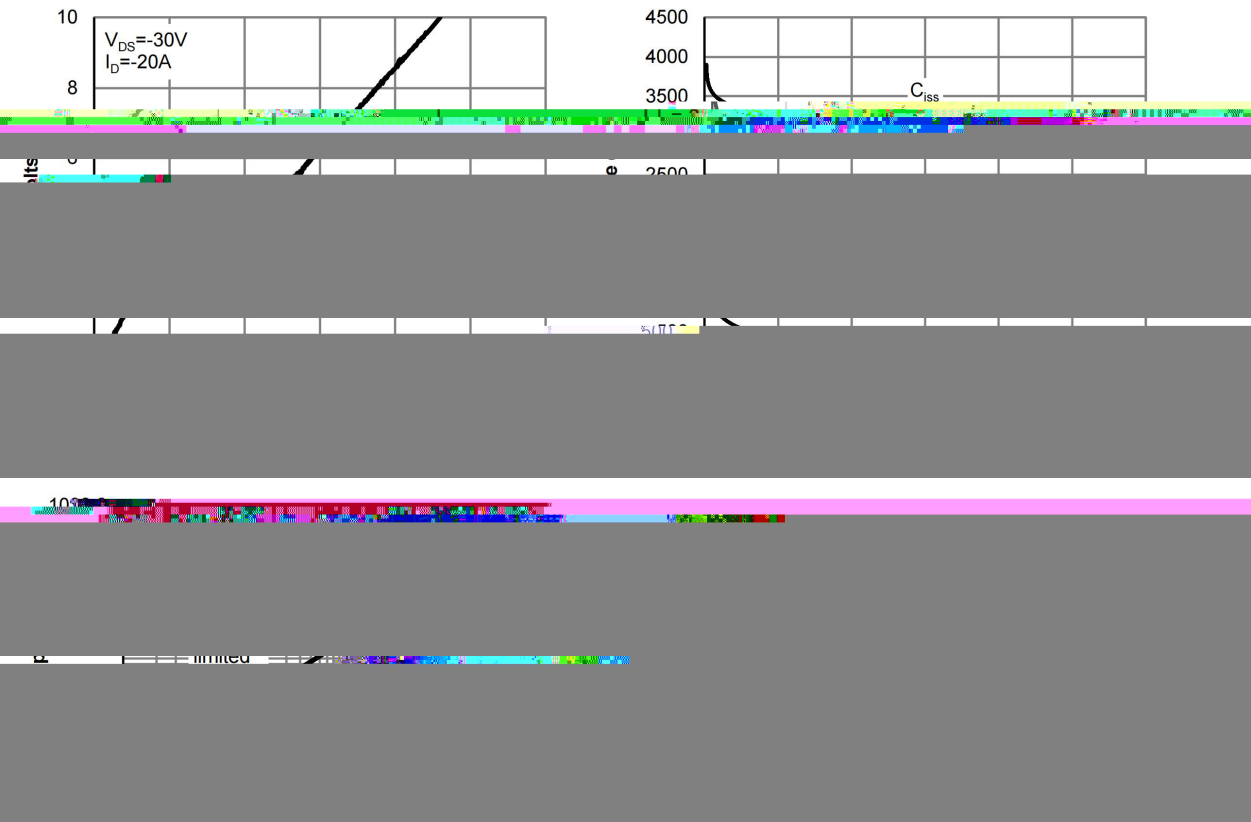
/ Electrical Characteristics(Ta=25)

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

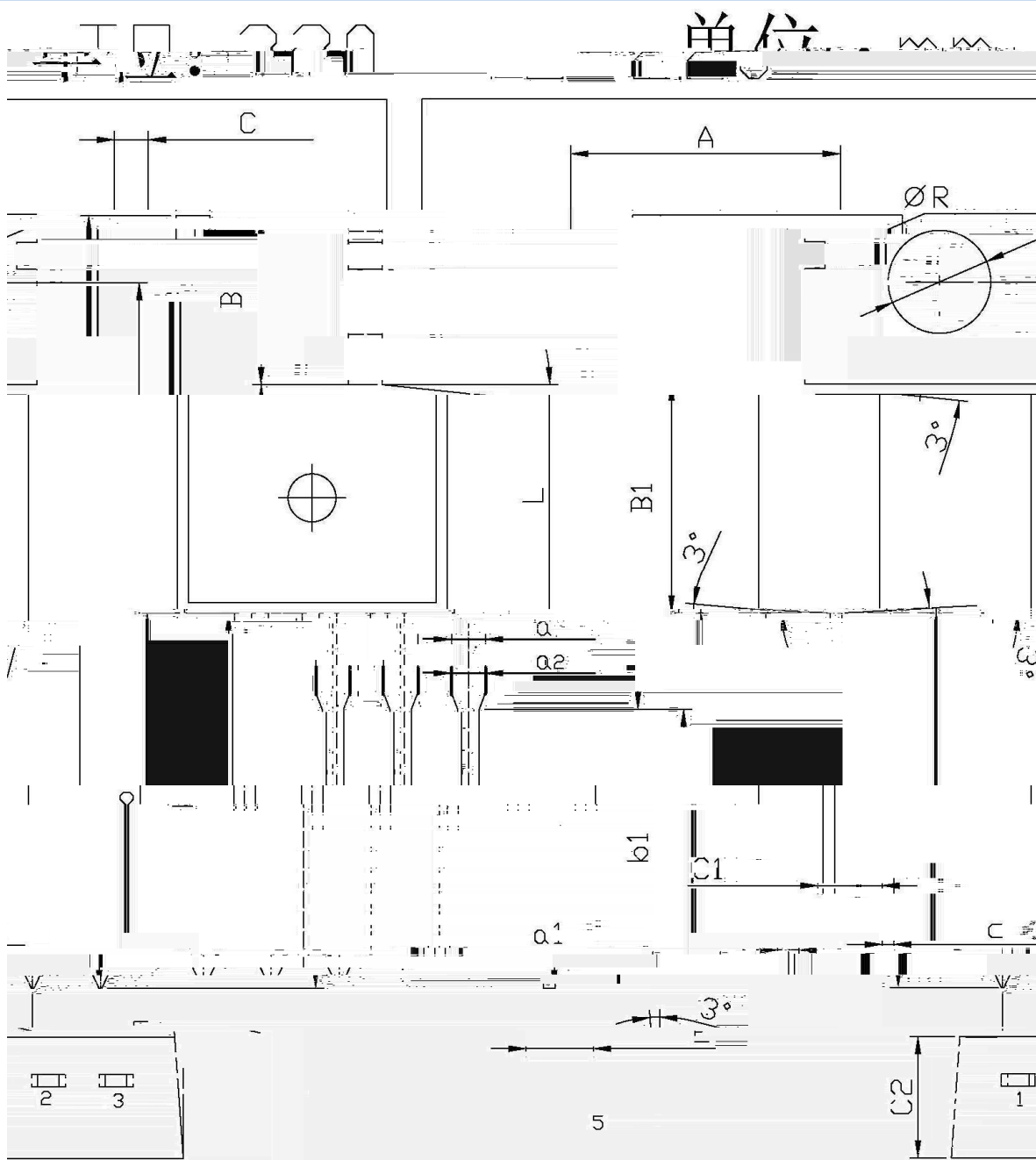
/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

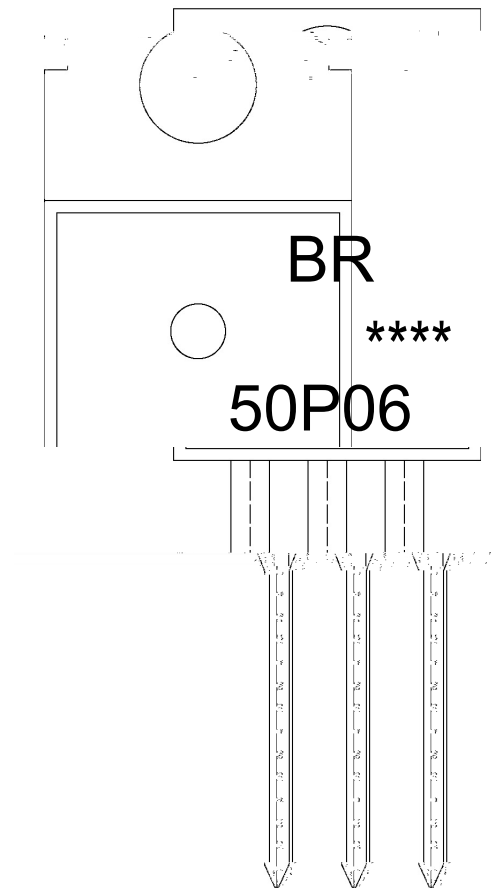


/ Package Dimensions



Symbol	Dimensions in Millimeters		Symbol	Dimensions in Millimeters	
	Min	Max		Min	Max
	9.8	10.2		12	14
	3.55	3.65		6.2	6.7
	15.7	16.1		9.0	9.4
	12.5	13.5		2.2	2.6
	9.6	10.6		0.7	0.9
	1.22	1.32		1.22	1.32
	1.25	1.45		1.25	1.45

/ Marking Instructions



BR

50P06

Note:

BR: Company Code

50P06: Product Type

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

