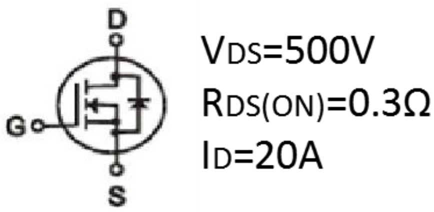
CS20N50
硅 N 沟道功率 MOSFET

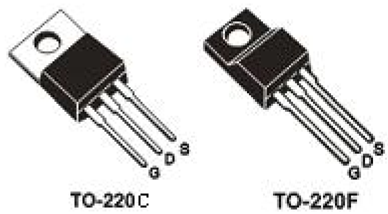
Description

CS20N50 是 N 沟道功率 MOSFET。 具有开关速度快，热阻低，输入阻抗高等特点，通常应用于电子镇流器、电子变压器、开关电源等器件。

1、最大额定值 除非另有规定，T_C= 25℃

参数	符号	额定值	单位
漏源电压	V_{DS}	500	V
栅源电压	V_{GS}	±30	V
漏极电流（Tc=25℃）	I_D	20	A
漏极电流（Tc=100℃）	I_D	12.5	A
最大脉冲电流	I_{DM}	80	A
耗散功率	Ptot	TO-220C：260	W
		TO-220F:45	
最高结温	Tj	150	℃
存储温度	Tstg	-55～150	℃
单脉冲雪崩能量	E_{AS}	1200	mJ





注：漏极电流由最高结温限制

2.电参数 除非另有规定，T_C= 25℃

参数	符号	测试条件	最小值	典型值	最大值	单位
漏源击穿电压	BV_{DSS}	V_{GS}= 0V, I_D= 250μA	500			V
击穿电压温度系数	△BV_{DSS}/△Tj	I_D= 250μA, Referenced to 25℃		0.6		V/℃
栅极开启电压	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D= 250μA	2.0		4.0	V
漏源漏电流	I_{DSS}	V_{DS}=500V ,V_{GS} =0V,Tj= 25℃			5	uA
		V_{DS}=400V ,V_{GS} =0V,Tj=125℃			100	uA
跨导	gfs	V_{DS}= 15V, I_D= 10A③		18		S
栅极漏电流	I_{GSS}	V_{GS}= ±30V			±100	nA
漏源导通电阻	$R_{DS(ON)}$	V_{GS}= 10V I_D= 10A③		0.24	0.3	Ω
输入电容	Ciss	V_{GS}=0V,		2919		pF

输出电容	Coss	V_{DS}=25V, f=1MHz		277		
重复传输电容	Crss			16		
启动延迟时间	$T_{d(on)}$	V_{DD}=250V I_D=20A R_G=10Ω③		34		nS
上升时间	Tr			65		
关断延迟	$T_{d(off)}$			82		
下降时间	Tf			45		
栅极电荷	Qg	V_{DS}= 400V V_{GS}= 10V I_D= 20A③		52		nC
栅源电荷	Qgs			12.6		
栅漏电荷	Qgd			18.6		
连续漏源电流	I_{SD}				20	A
脉冲漏源电流	I_{SM}				80	A
二极管正向压降	V_{SD}	Tj=25℃, Is=20A, V_{GS}=0V③			1.5	V
反向回复时间	trr	Tj=25℃, Is=20A, di/dt=100A/μs③		535		nS
反向回复电荷	Qrr			5671		uC

3.热特性

参数	符号	最大值		单位
		TO-220C	TO-220F	℃/W
结-壳热阻	Rthjc	0.48	2.78	℃/W
结-环境热阻	RthjA	62.5	62.5	℃/W

注释(Notes):

①脉冲宽度：以最高结温为限制

②初始结温=25℃，VDD =50V，L=10mH，RG =25Ω，I_{AS}=15.5A

③脉冲测试：脉冲宽度≤ 300μs ，占空比≤ 2 %

4. 特性曲线

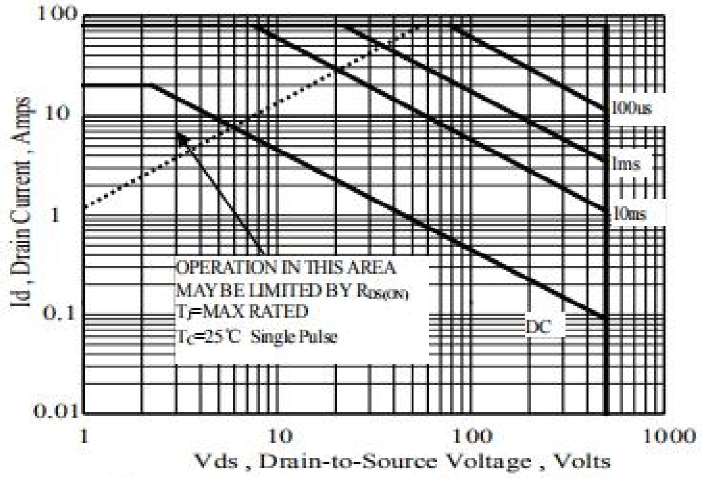


Figure 1 Maximum Forward Bias Safe Operating Area

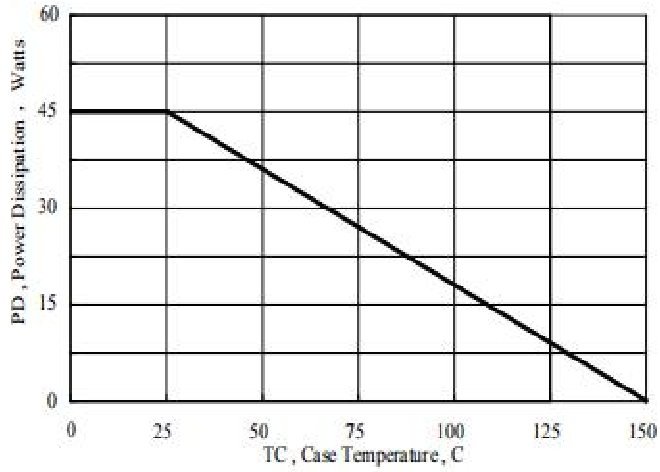


Figure 2 Maximum Power Dissipation vs Case Temperature

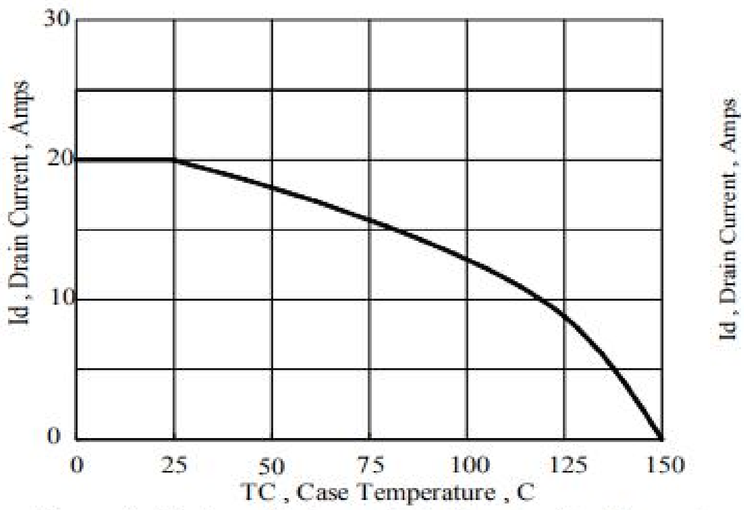


Figure 3 Maximum Continuous Drain Current vs Case Temperature

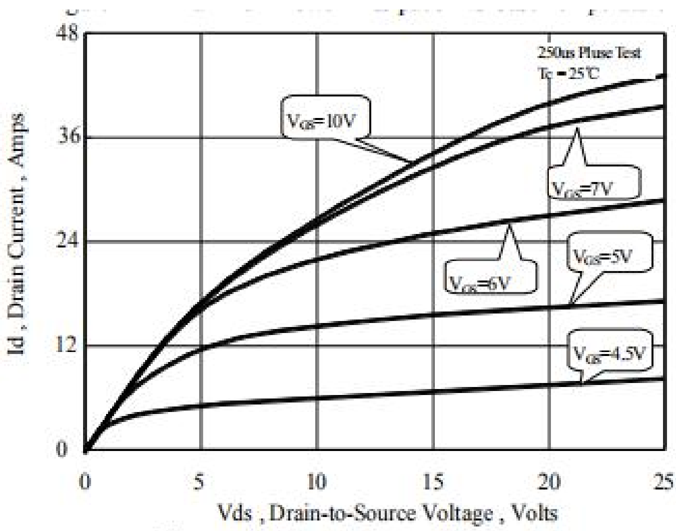


Figure 4 Typical Output Characteristics

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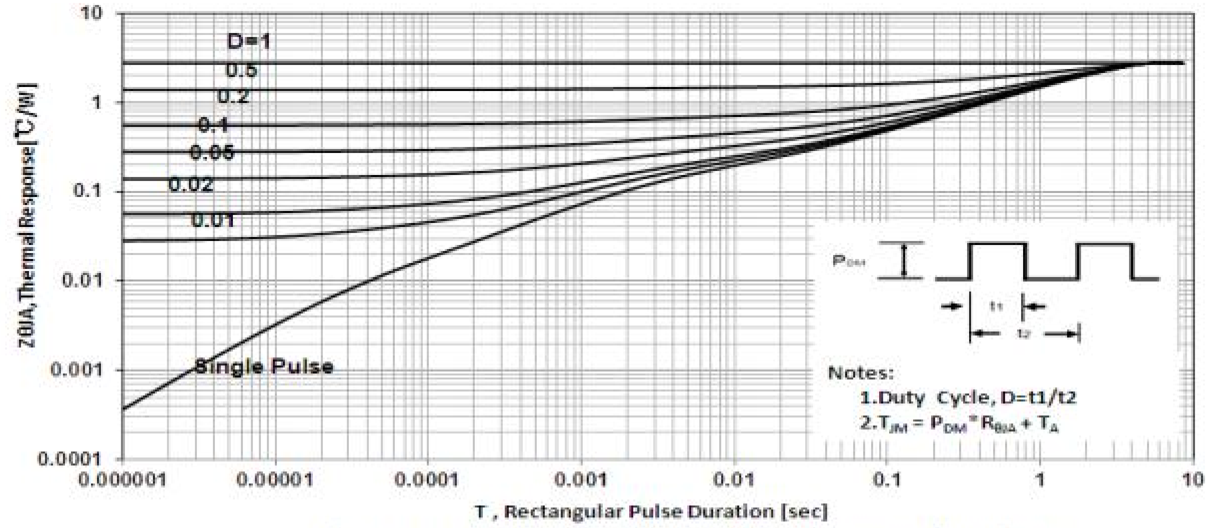

Figure 5 Maximum Effective Thermal Impedance , Junction to Case

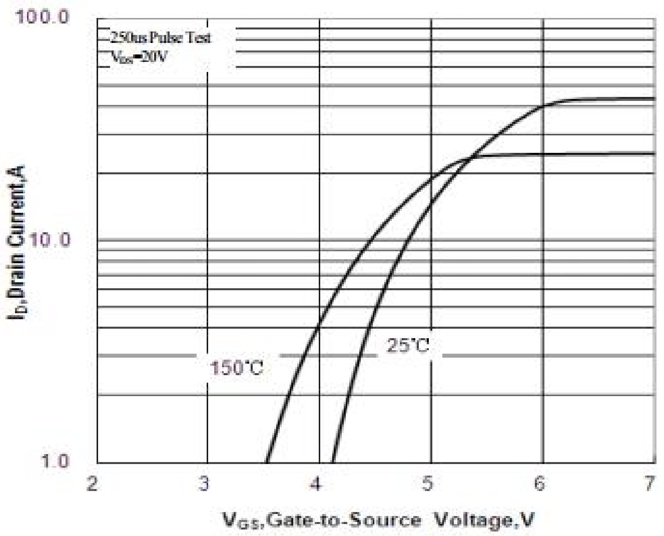

Figure 6 Typical Transfer Characteristics

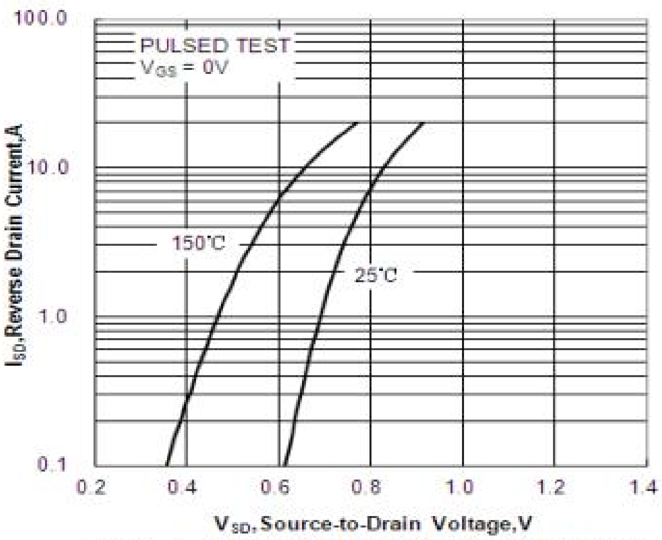

Figure 7 Typical Body Diode Transfer Characteristics

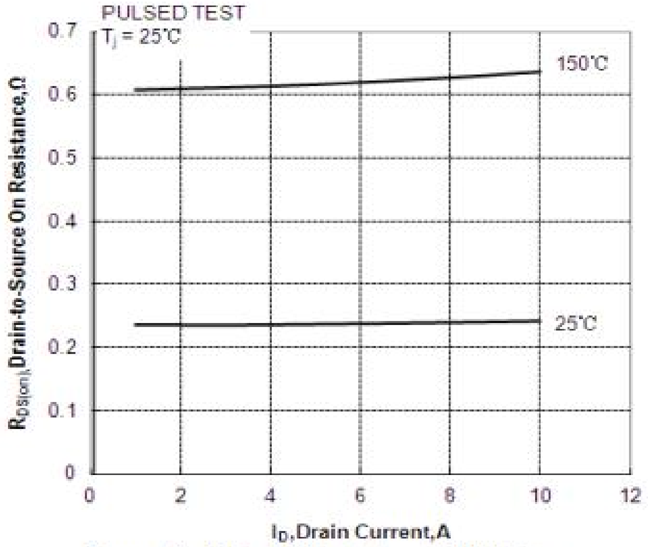

Figure 8 Typical Drain to Source ON Resistance vs Drain Current

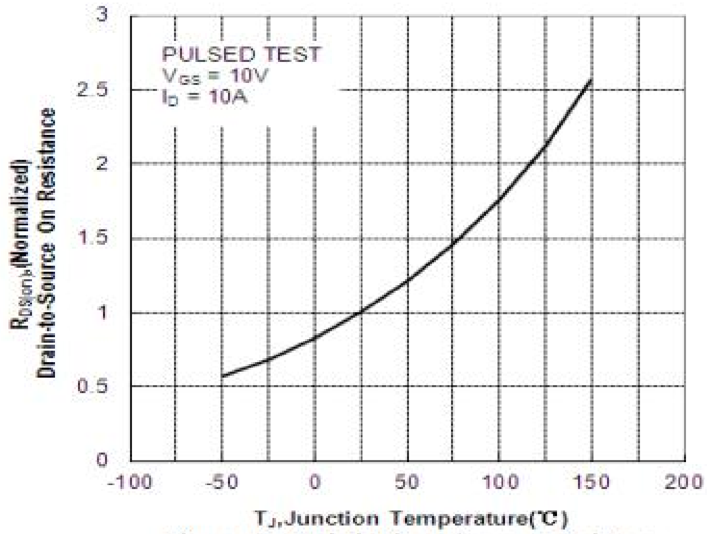

Figure 9 Typical Drian to Source on Resistance vs Junction Temperature

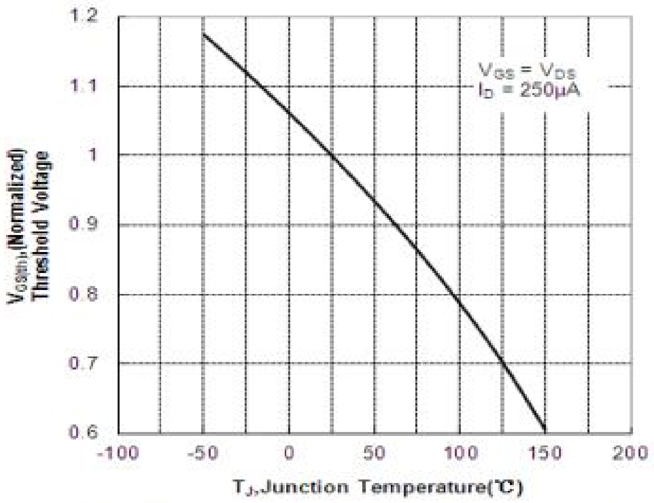

Figure 10 Typical Theshold Voltage vs Junction Temperature

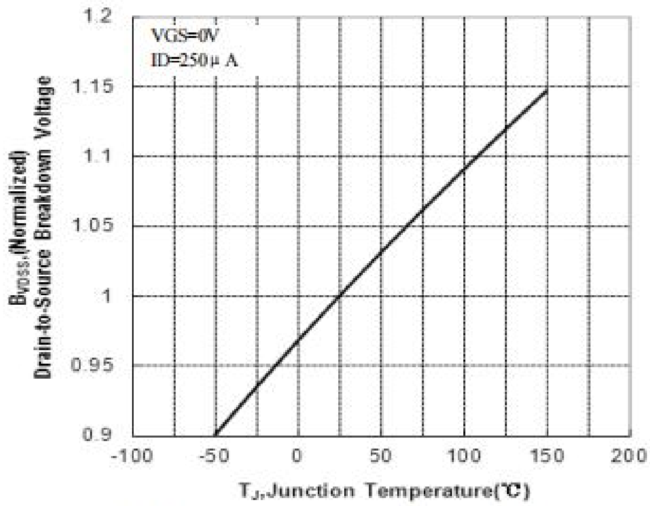

Figure 11 Typical Breakdown Voltage vs Junction Temperature

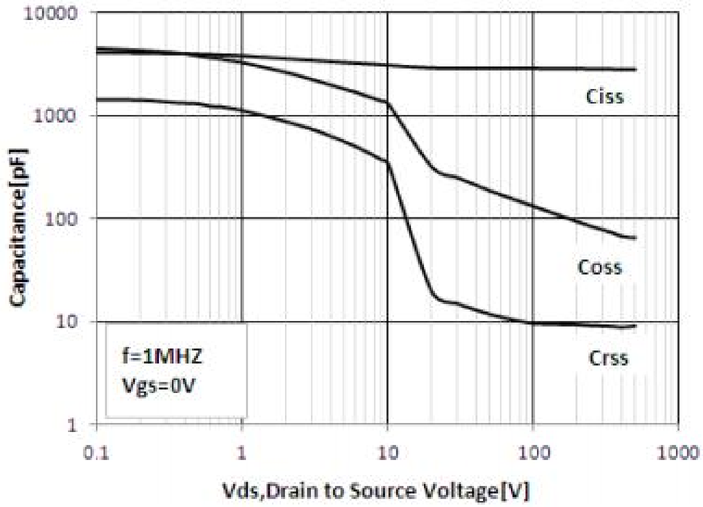

Figure 12 Typical Capacitance vs Drain to Source Voltage

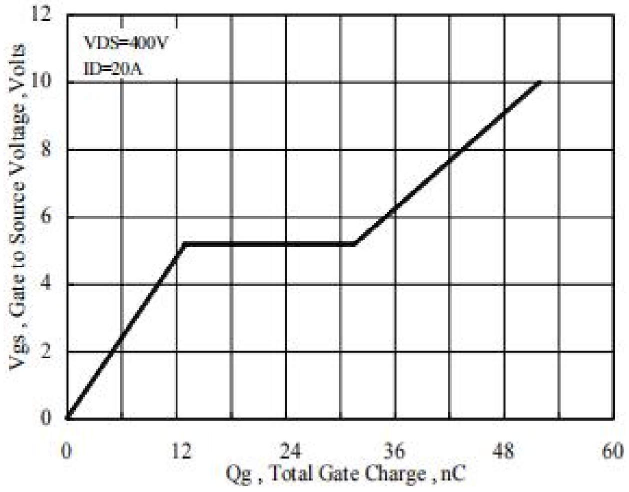

Figure 13 Typical Gate Charge vs Gate to Source Voltage