

CS60N20

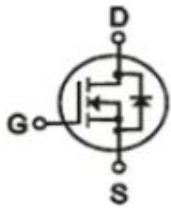
硅 N 沟道功率 MOSFET

Description


CS60N20 是 N 沟道功率 MOSFET。具有开关速度快，导通电阻低，低门电荷等特点，通常应用于高速开关电源、PWM 电机控制、直流转换器和桥电路等器件。

1、最大额定值 除非另有规定， $T_c=25^\circ\text{C}$


参数	符号	额定值	单位
漏源电压	V_{DS}	200	V
栅源电压	V_{GS}	± 30	V
漏极电流 ($T_c=25^\circ\text{C}$)	I_D	60	A
漏极电流 ($T_c=100^\circ\text{C}$)	I_D	38	A
最大脉冲电流	I_{DM}	240	A
耗散功率	P_{tot}	TO-220/263: 375	W
		TO-220F: 85	
最高结温	T_j	150	$^\circ\text{C}$
存储温度	T_{stg}	$-55\sim 150$	$^\circ\text{C}$
单脉冲雪崩能量②	E_{AS}	1000	mJ




$V_{DS}=200\text{V}$
 $R_{DS(ON)}=0.053\Omega$
 $I_D=60\text{A}$



TO-220



TO-220F



TO-263

注：漏极电流由最高结温限制

2.电参数 除非另有规定， $T_c=25^\circ\text{C}$

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}	$V_{GS}=0\text{V}, I_D=$	200			V



		250 μ A				
击穿电压温度系数	$\Delta BV_{DSS}/\Delta T_j$	$I_D = 250 \mu A$, Referenced to 25°C		0.6		V/°C
栅极开启电压	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250 \mu A$ ③	2.0	3.0	4.0	V
漏源漏电流	I_{DSS}	$V_{DS} = 200V$, $V_{GS} = 0V$,			25	μA
		$V_{DS} = 160V$, $T_C = 125^\circ C$			250	
跨导	gfs	$V_{DS} = 50V$, $I_D = 30A$ ③	24			S
栅极漏电流	I_{GSS}	$V_{GS} = \pm 20V$			± 100	nA
漏源导通电阻	$R_{DS(on)}$	$V_{GS} = 10V$ $I_D = 30A$ ③			0.053	Ω
输入电容	C_{iss}	$V_{GS} = 0V$,		5100		pF
输出电容	C_{oss}	$V_{DS} = 25V$, $f =$		1080		
重复传输电容	C_{rss}	1MHz		296		
启动延迟时间	$T_d(on)$	$V_{DD} = 100V$, $V_{GS} =$		22		nS
上升时间	T_r	10V, $R_L = 15 \Omega$		123		
关断延迟时间	$T_d(off)$	$I_D = 60A$		97		



下降时间	T_f	$R_G=4.3\ \Omega$		92		
栅极电荷	Q_g	$V_{DS}=160V$		220		nC
栅源电荷	Q_{gs}	$V_{GS}=10V$		39		nC
栅漏电荷	Q_{gd}	$I_D=60A$		108		nC
二极管正向压降	V_{SD}	$T_j=25^\circ C, I_S=60A, V_{GS}=0V$ ③			1.4	V
连续漏源电流	I_S				60	A
脉冲漏源电流	I_{SM}				240	A
反向回复时间	t_{rr}	$T_j=25^\circ C, I_f=60A, V_{GS}=0V$		380	595	nS
反向回复电荷	Q_{rr}	$di/dt=100A/\mu s$ ③		4.5	7.5	uC

3.热特性

参数	符号	最大值		单位
		T0-220/263	T0-220F	
结-壳热阻	R_{thjc}	0.33	1.47	$^\circ C/W$
结-环境热阻	R_{thjA}	40	40	$^\circ C/W$

注释(Notes):

①脉冲宽度: 以最高结温为限制

②初始结温= $25^\circ C$, $V_{DD}=50V$, $L=2.22mH$, $R_G=25\ \Omega$,

③脉冲测试: 脉冲宽度 $\leq 300\ \mu s$, 占空比 $\leq 2\%$



4. 特性曲线

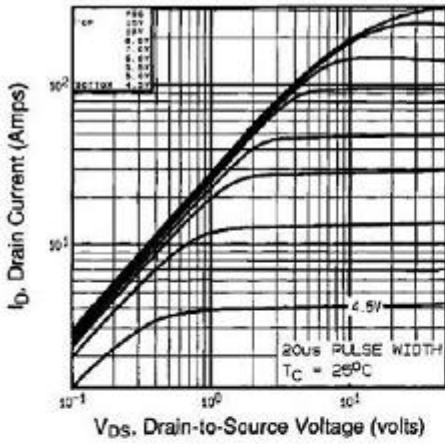


Figure 1. Output Characteristics

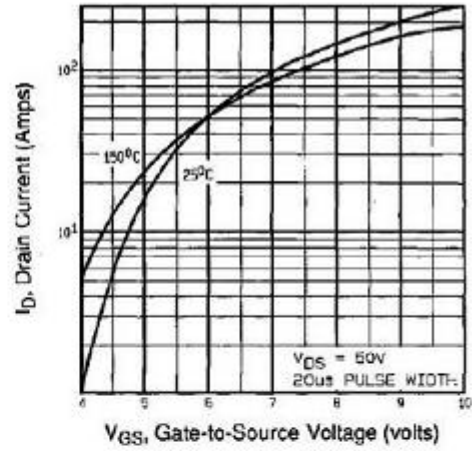


Figure 2. Transfer Characteristics

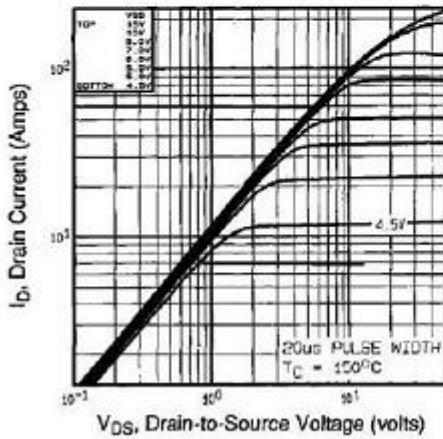


Figure 3. Transfer Characteristics $T_C=150^\circ\text{C}$

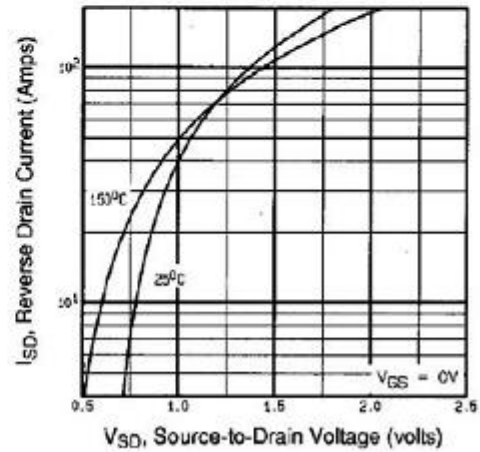


Figure 4. Body Diode Forward Voltage vs. Source Current and Temperature

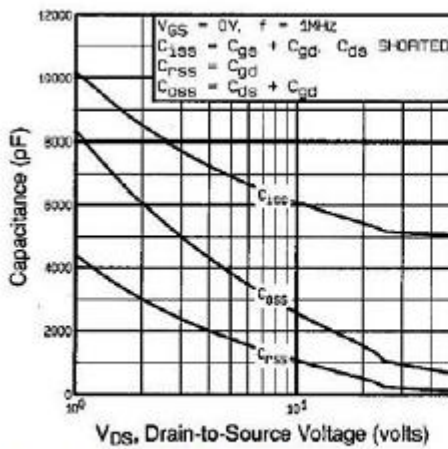


Figure 5. Capacitance Characteristics

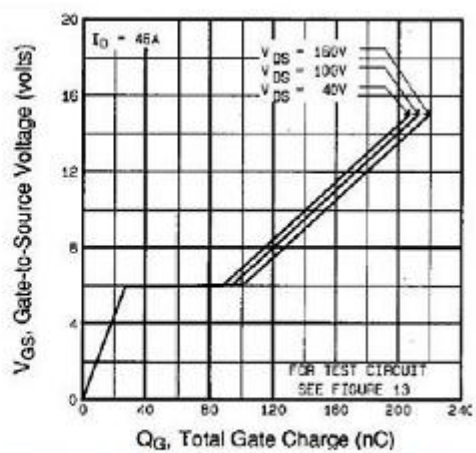


Figure 6. Gate Charge Characteristics

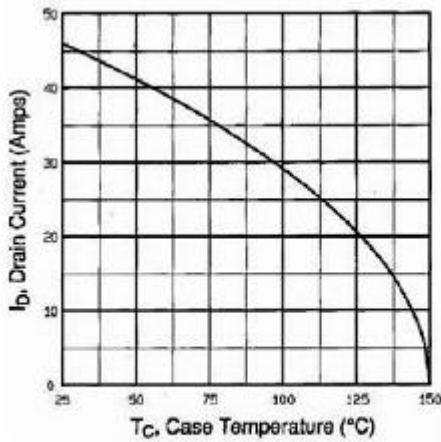


Figure 7. Maximum Continuous Drain Current vs. Case Temperature

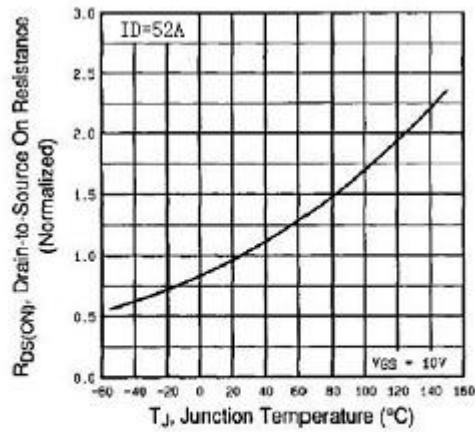


Figure 8. Normalized On Resistance vs. Junction Temperature

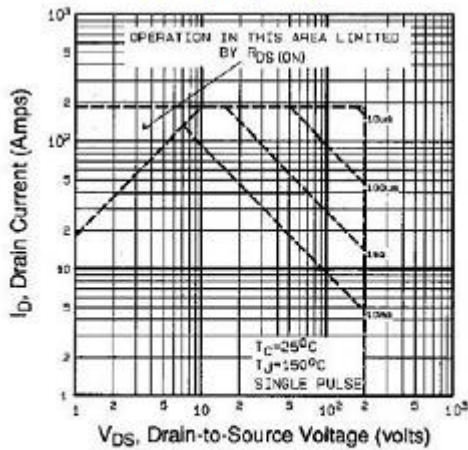


Figure 9. Maximum Safe Operating Area

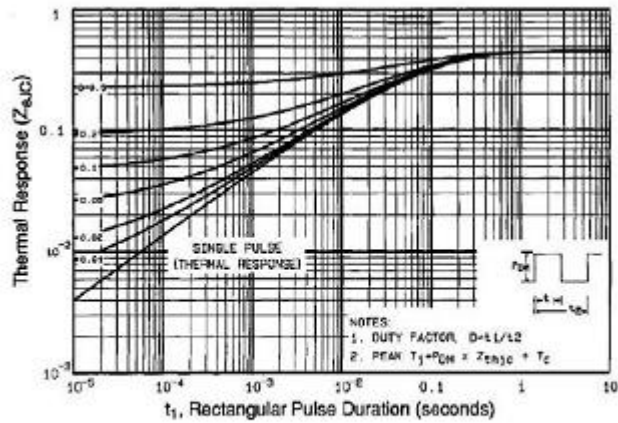


Figure 10. Maximum Effective Transient Thermal Impedance, Junction-to-Case