

CS15N50

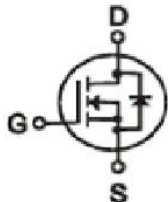
硅 N 沟道功率 MOSFET

Description


CS15N50 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， $T_c = 25^\circ\text{C}$


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 ($T_c=25^\circ\text{C}$)	I_D	15	A
漏极电流 ($T_c=100^\circ\text{C}$)	I_D	9	A
最大脉冲电流	I_{DM}	60	A
耗散功率	P_{tot}	TO-220/263: 245	W
		TO-220F: 70	
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	E_{AS}	810	mJ




$V_{DS}=500\text{V}$
 $R_{DS(ON)}=0.48\Omega$
 $I_D=15\text{A}$



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}	$V_{GS} = 0\text{V}, I_D =$	500			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 μ A	2.0		4.0	V
漏源漏电流	I_{DSS}	$V_{DS}=500V$, V_{GS} $=0V$, $T_j= 25^\circ C$			5	μA
		$V_{DS}=400V$, V_{GS} $=0V$, $T_j=125^\circ C$			100	μA
栅极漏电流	I_{GSS}	$V_{GS}= \pm 30V$			± 100	nA
漏源导通电阻	$R_{DS(on)}$	$V_{GS}= 10V$ $I_D= 7.5A$ ③		0.42	0.48	Ω
输入电容	C_{iss}	$V_{GS}=0V$,		1400		pF
输出电容	C_{oss}	$V_{DS}=25V$, $f=$		148		
重复传输电容	C_{rss}	1MHz		16		
启动延迟时间	$T_d(on)$	$V_{DD}=250V$ $I_D=15A$ $R_G=25 \Omega$ ③		30		nS
上升时间	T_r			12		
关断延迟	$T_d(off)$			95		
下降时间	T_f			22		
栅极电荷	Q_g	$V_{DS}= 400V$		44		nC
栅源电荷	Q_{gs}	$V_{GS}= 10V$		8.6		nC



栅漏电荷	Qgd	$I_D = 15A$ ③		21		nC
连续漏源电流	I_{SD}				15	A
脉冲漏源电流	I_{SM}				60	A
二极管正向压降	V_{SD}	$T_j = 25^\circ C, I_s = 1$ $5A, V_{GS} = 0V$ ③			1.4	V
反向回复时间	trr	$T_j = 25^\circ C, I_f = 1$ $5A, V_{GS} = 0V,$ $di/dt = 100A/$ μs ③		380		nS
反向回复电荷	Qrr			4.5		uC

3.热特性

参数	符号	最大值		单位
		TO-220/263	TO-220F	
结-壳热阻	R_{thjc}	0.51	1.78	$^\circ C/W$
结-环境热阻	R_{thjA}	62.5	62.5	$^\circ C/W$

注释(Notes):

①脉冲宽度: 以最高结温为限制

②初始结温= $25^\circ C$, $V_{DD} = 50V$, $L = 20mH$, $R_G = 25 \Omega$, $I_{AS} = 9A$

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

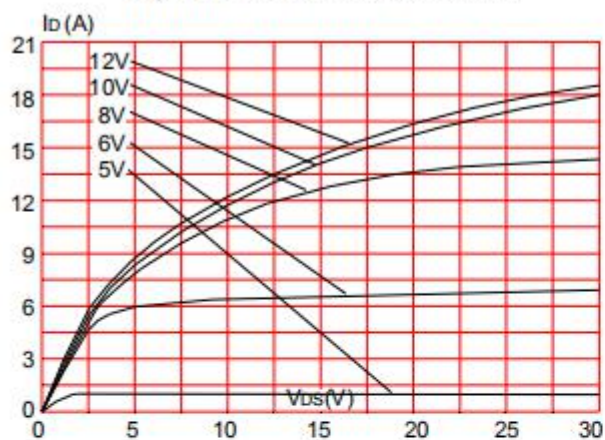


Figure 2: Typical Transfer Characteristics

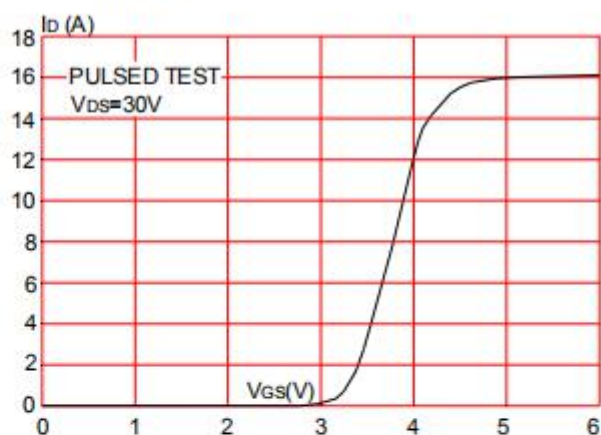


Figure 3: On-resistance vs. Drain Current

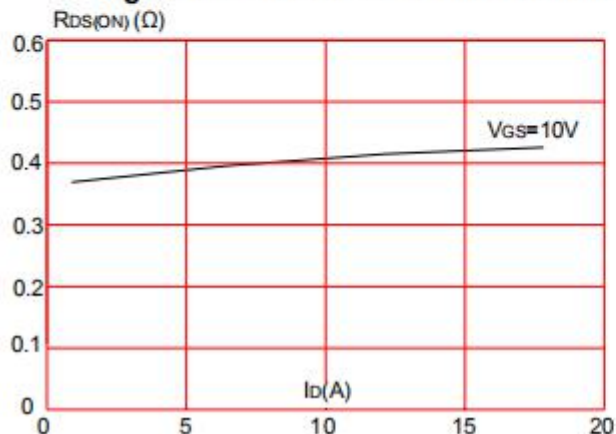


Figure 4: Body Diode Characteristics

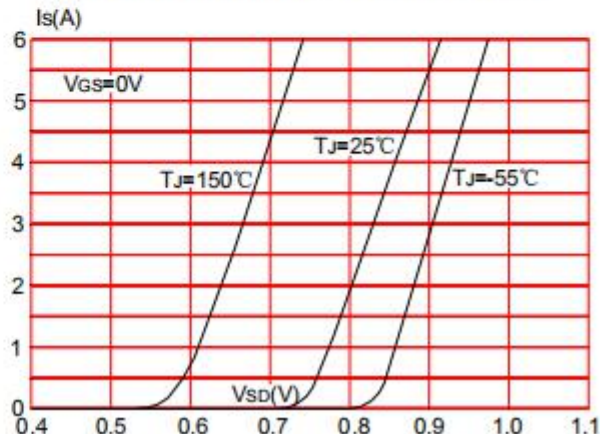


Figure 5: Gate Charge Characteristics

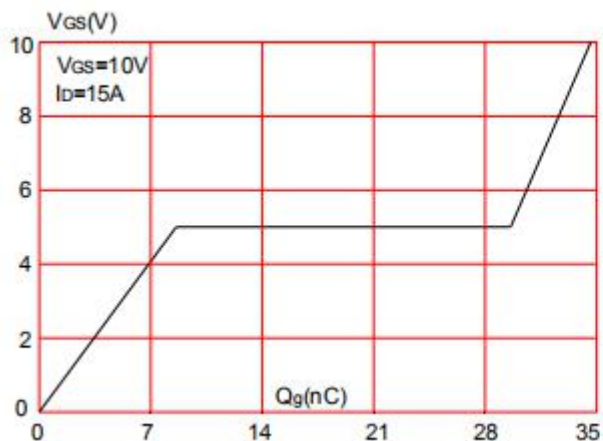


Figure 6: Capacitance Characteristics

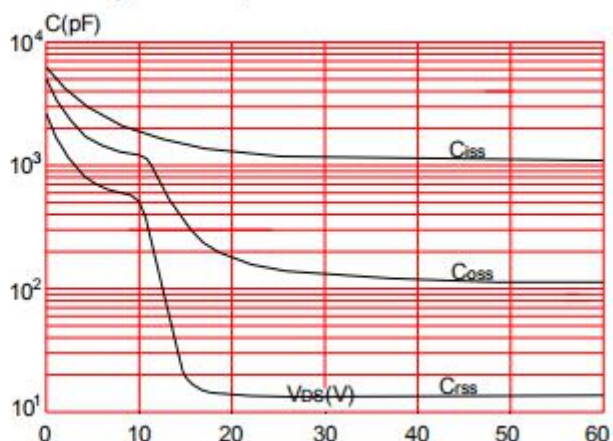


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

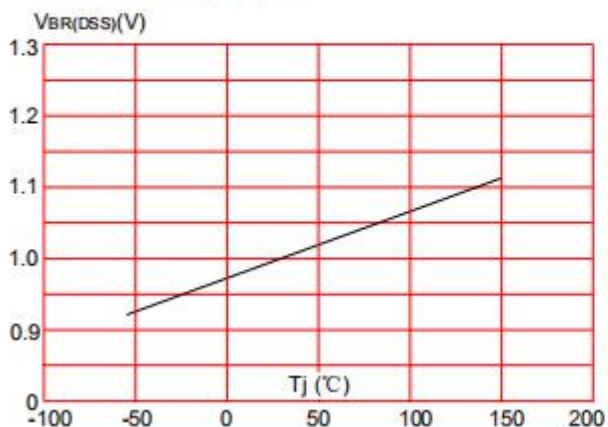


Figure 8: Normalized on Resistance vs. Junction Temperature

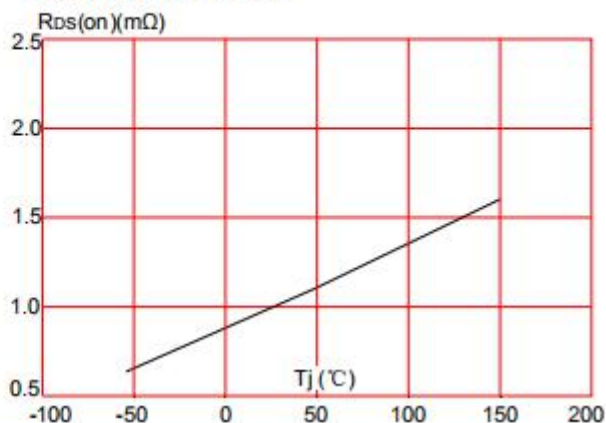


Figure 9: Maximum Safe Operating Area

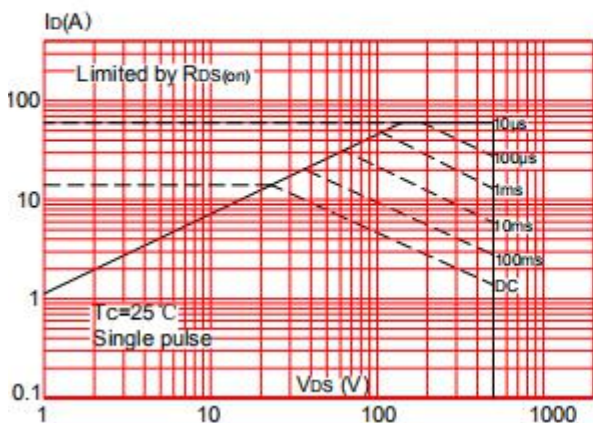


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

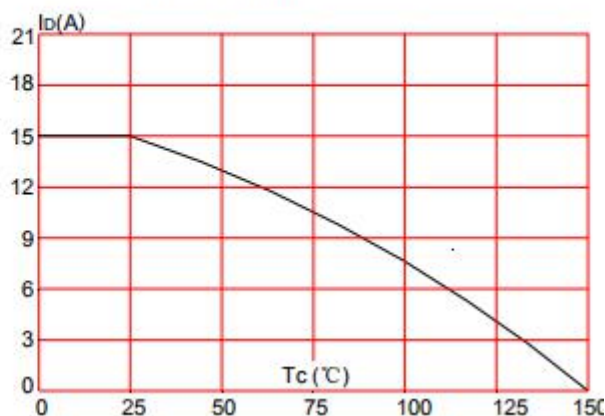


Figure.11: Maximum Effective

Transient Thermal Impedance, Junction-to-Case (TO-220 ,TO-263)

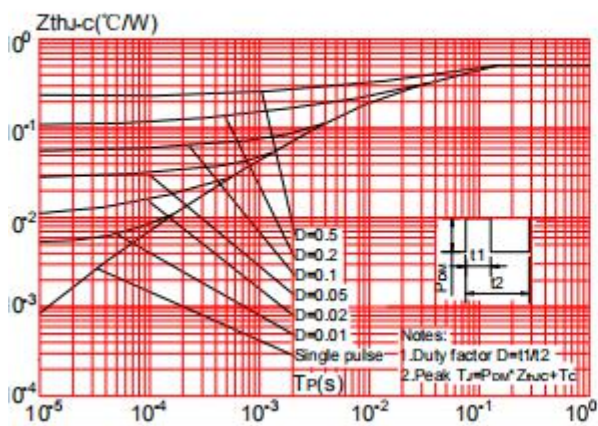


Figure12: Maximum Effective

Transient Thermal Impedance, Junction-to-Case (TO-220F)

