BR12N60(CS12N60)　N-CHANNEL MOSFET/N沟道MOS晶体管

用途：该器件适用于高效电源模块，主动式PFC电路和基于半桥拓扑结构的电子节能灯。

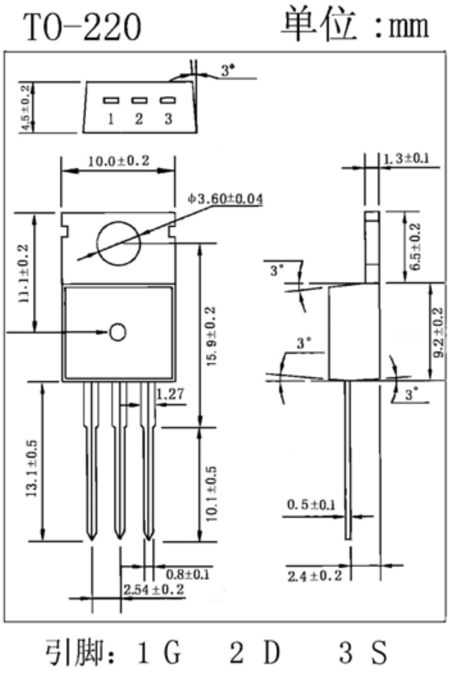
Purpose: These devices are well suited for high efficient switched mode power supplies,active power factor correction,electronic lamp ballast based on half bridge topology.

特点：低栅电荷,反向传输电容低,开关速度快。

Features: Low gate charge, low crss, fast switching.

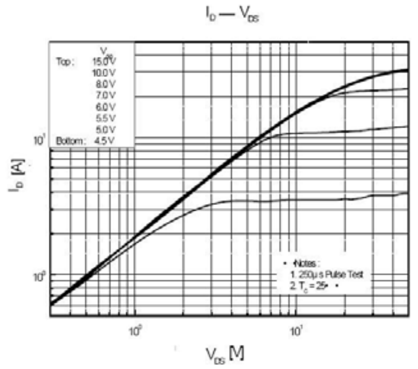
极限参数/Absolute maximum ratings(Ta=25℃)

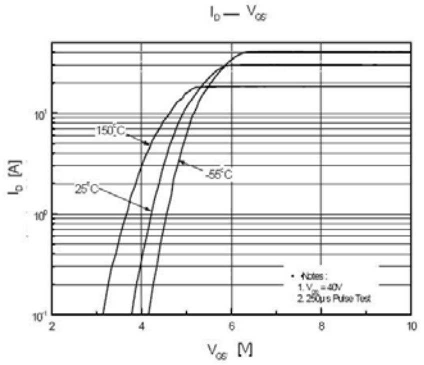
参数符号 Symbol	数值 Rating	单位 Unit
V_{DSS}	600	V
I_D(Tc=25℃)	12	A
I_D(Tc=100℃)	7.4	A
I_{DM}	48	A
V_{GSS}	±30	V
E_{AS}	870	mJ
E_{AR}	22.5	mJ
I_{AR}	12	A
P_D(Tc=25℃)	225	W
T_J, T_{STG}	-55 to 150	℃

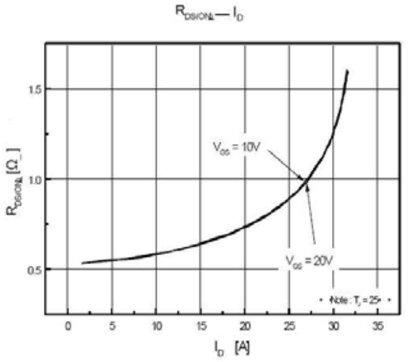


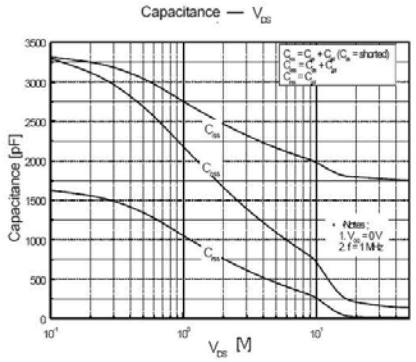
电性能参数/Electrical Characteristics(Ta=25℃)

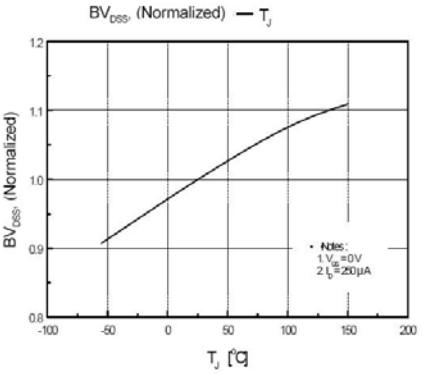
参数符号 Symbol	测试条件 Test Conditions		最小值 Min	典型值 Typ	最大值 Max	单位 Unit
BV_{DSS}	V_{GS}=0V	I_D=250μA	600			V
I_{DSS}	V_{DS}=600V	V_{GS}=0V			1	μA
	V_{DS}=480V	T_C=125℃			10	μA
I_{GSS}	V_{GS}=±30V	V_{DS}=0V			±0.1	μA
$V_{GS(th)}$	V_{DS}=V_{GS}	I_D=250μA	2		4	V
$R_{DS(on)}$	V_{GS}=10V	I_D=6A		0.53	0.65	Ω
g_{FS}	V_{DS}=40V	I_D=6A		13		S
V_{SD}	V_{GS}=0V	I_S=12A			1.4	V
C_{iss}	V_{DS}=25V　V_{GS}=0V　f=1MHz			1760	2290	pF
C_{oss}				182	235	pF
C_{rss}				21	28	pF
$t_{d(on)}$	V_{DD}=300V　I_D=12A　R_G=25Ω			30	70	ns
t_r				85	180	ns
$t_{d(off)}$				140	280	ns
t_f				90	190	ns

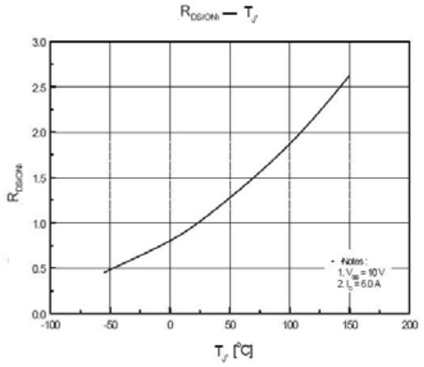

I_D — V_{DS}
V_{GS}
Top: 15.0V
10.0V
8.0V
7.0V
6.0V
5.5V
5.0V
Bottom: 4.5V
• Notes:
1. 250μs Pulse Test
2. T_C = 25
I_D [A]
V_{DS} [V]
10^0
10^1

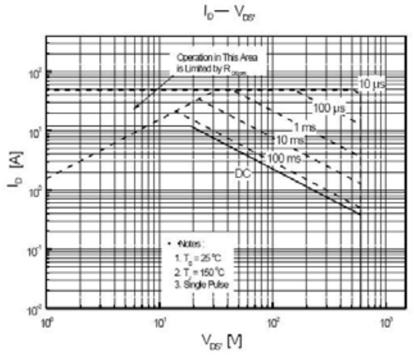

I_D — V_{GS}
150°C
25°C
-55°C
• Notes:
1. V_{DS} = 40V
2. 250μs Pulse Test
I_D [A]
V_{GS} [V]
10^{-1}
10^0
10^1
2
4
6
8
10


$R_{DS(ON)}$ — I_D
V_{GS} = 10V
V_{GS} = 20V
• Note: T_J = 25
$R_{DS(ON)}$ [Ω]
I_D [A]
0.5
1.0
1.5
0
5
10
15
20
25
30
35


Capacitance — V_{DS}
$C_{iss} = C_{gs} + C_{gd}$ (C_{ds} = shorted)
$C_{oss} = C_{ds} + C_{gd}$
$C_{rss} = C_{gd}$
C_{iss}
C_{oss}
C_{rss}
• Notes:
1. V_{GS} = 0V
2. f = 1MHz
Capacitance [pF]
V_{DS} [V]
0
500
1000
1500
2000
2500
3000
3500
10^{-1}
10^0
10^1


BV_{DSS}, (Normalized) — T_J
• Notes:
1. V_{GS} = 0V
2. I_D = 250μA
BV_{DSS}, (Normalized)
T_J [°C]
0.8
0.9
1.0
1.1
1.2
-100
-50
0
50
100
150
200


$R_{DS(ON)}$ — T_J
• Notes:
1. V_{GS} = 10V
2. I_D = 6.0A
$R_{DS(ON)}$
T_J [°C]
0.0
0.5
1.0
1.5
2.0
2.5
3.0
-100
-50
0
50
100
150
200


I_D — V_{DS}
Operation in This Area is Limited by $R_{DS(on)}$
10 μs
100 μs
1 ms
10 ms
100 ms
DC
• Notes:
1. T_C = 25°C
2. T_J = 150°C
3. Single Pulse
I_D [A]
V_{DS} [V]
10^{-2}
10^{-1}
10^0
10^1
10^2
10^0
10^1
10^2
10^3