

6N100

主要参数 MAIN CHARACTERISTICS

I_D	6 A
V_{DS}	1000V
$R_{ds(on)} (V_{GS}=10V)$	2.8 Ω

用途

- 负载开关
- 脉宽调制
- 电源管理

APPLICATIONS

- Load Switch
- PWM Application
- Power Management

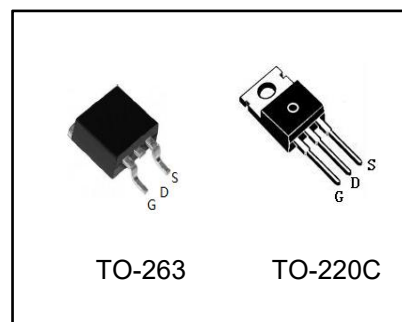
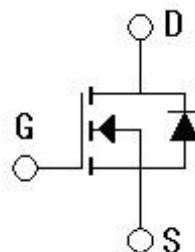
产品特性

- 先进沟槽技术
- 符合环保标准
- 产品无卤素
- 湿敏等级3级

FEATURES

- Advanced Trench Technology
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

封装 Package



产品中有毒有害物质或元素的名称及含量

部件名称	有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
(含量要求)	≤0.1%	≤0.1%	≤0.01%	≤0.1%	≤0.1%	≤0.1%
引线框	○	○	○	○	○	○
塑封树脂	○	○	○	○	○	○
管芯	○	○	○	○	○	○
内引线	○	○	○	○	○	○
焊料	×	○	○	○	○	○
说明	○: 表示该元素的含量在 SJ/T11363-2006 标准的限量要求以下。 ×: 表示该元素的含量超出 SJ/T11363-2006 标准的限量要求。 目前产品的焊料中含有铅 (Pb) 成分, 但属于欧盟 RoHS 指令豁免范围。					

绝对最大额定值 **ABSOLUTE RATINGS** ($T_c=25^{\circ}\text{C}$)

项 目 Parameter	符 号 Symbol	数 值 Value	单 位 Unit
最高漏极-源极直流电压 Drain-Source Voltage	V_{DS}	1000	V
连续漏极电流 Drain Current-continuous	I_D $T=25^{\circ}\text{C}$ $T=100^{\circ}\text{C}$	6 3.6	A
最大脉冲漏极电流 Drain Current – pulse ^{Note 1}	I_{DM}	12	A
最高栅源电压 Gate-Source Voltage	V_{GS}	± 30	V
单脉冲雪崩能量 Single Pulsed Avalanche Energy ^{Note 2}	E_{AS}	120	mJ
耗散功率 Power Dissipation	P_D $T_c=25^{\circ}\text{C}$	145	W
最高结温及存储温度 Operating and Storage Temperature Range	T_J, T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

电特性 ELECTRICAL CHARACTERISTICS

项 目 Parameter	符 号 Symbol	测试条件 Tests conditions	最小 Min	典型 Typ	最大 Max	单位 Units
关态特性 Off –Characteristics						
漏—源击穿电压 Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V, T_J=25^\circ C$	1000	-	-	V
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=1000V, V_{GS}=0V, T_C=25^\circ C$	-	-	10	μA
正向栅极体漏电流 Gate-body leakage current, forward	I_{GSSF}	$V_{DS}=0V, V_{GS}=30V$	-	-	100	nA
反向栅极体漏电流 Gate-body leakage current, reverse	I_{GSSR}	$V_{DS}=0V, V_{GS}=-30V$	-	-	-100	nA
通态特性 On-Characteristics						
阈值电压 Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D=250\mu A$	3.0	3.8	5.0	V
静态导通电阻 Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=3A$	-	2.4	2.8	Ω
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	-	1450	-	pF
输出电容 Output capacitance	C_{oss}		-	130	-	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	8	-	pF

电特性 ELECTRICAL CHARACTERISTICS

开关特性 Switching Characteristics						
延迟时间 Turn-On delay time	$t_{d(on)}$	$V_{DD}=500V, I_D=3A, R_G=4.7\Omega$ $V_{GS}=10V$	-	22	-	ns
上升时间 Turn-On rise time	t_r		-	45	-	ns
延迟时间 Turn-Off delay time	$t_{d(off)}$		-	45	-	ns
下降时间 Turn-Off Fall time	t_f		-	50	-	ns
栅极电荷总量 Total Gate Charge	Q_g	$V_{DS}=500V,$ $I_D=3A$ $V_{GS}=10V$	-	33	-	nC
栅-源电荷 Gate-Source charge	Q_{gs}		-	6	-	nC
栅-漏电荷 Gate-Drain charge	Q_{gd}		-	20	-	nC
栅极电阻 Gate Resistance	R_g	$f=1MHz$	-	2.5	-	Ω
漏-源二极管特性及最大额定值 Drain-Source Diode Characteristics and Maximum Ratings						
正向最大连续电流 Maximum Continuous Drain -Source Diode Forward Current	I_S		-	6	-	A
正向压降 Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=6A$	-	0.85	1.2	V
反向恢复时间 Reverse Recovery Time	T_{RR}	$V_{GS}=0V, I_S=6A, di_F/dt$ $=100A/\mu s$	-	600	-	ns
反向恢复电荷 Reverse Recovery Charge	Q_{RR}		-	10	-	μC

热特性 THERMAL CHARACTERISTIC

项 目 Parameter	符号 Symbol	值 Value	单位 Unit
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$	0.85	$^{\circ}C/W$
结到环境的热阻 Thermal Resistance, Junction-to-Ambient	$R_{th(j-A)}$	62.5	$^{\circ}C/W$

NOTES:

1. Drain current is limited by maximum junction temperature.
2. $L=10mH, I_{AS}=5A, R_G=25\Omega$, Starting at $T_J=25^{\circ}C$

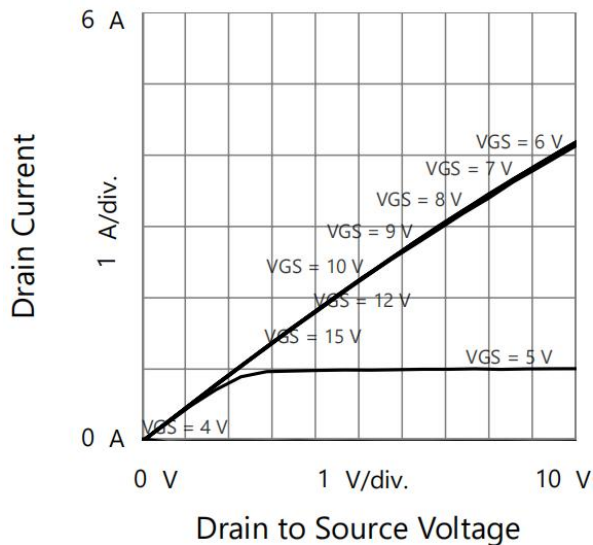
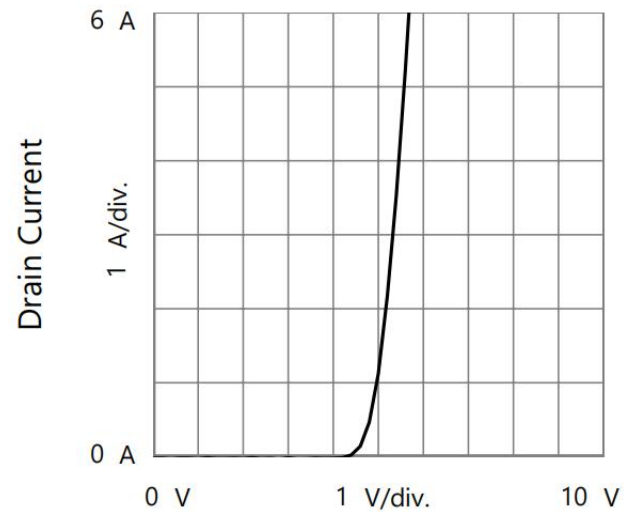
特征曲线 **ELECTRICAL CHARACTERISTICS**Fig1. Output characteristics $T_J = 25^\circ\text{C}$ 

Fig2. Transfer Characteristics

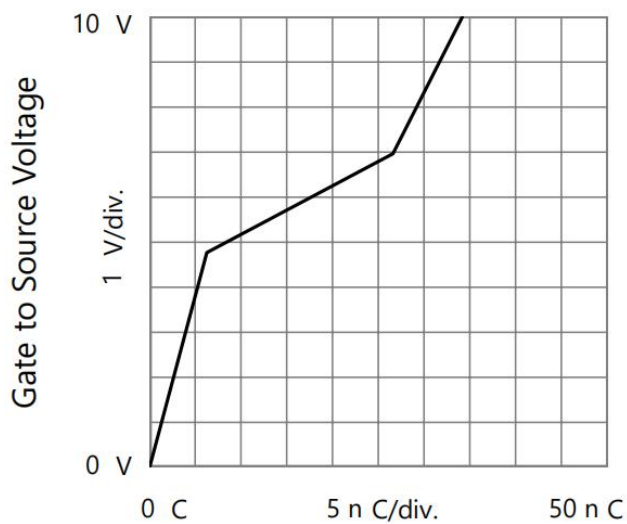


Fig3. Gate charge characteristics

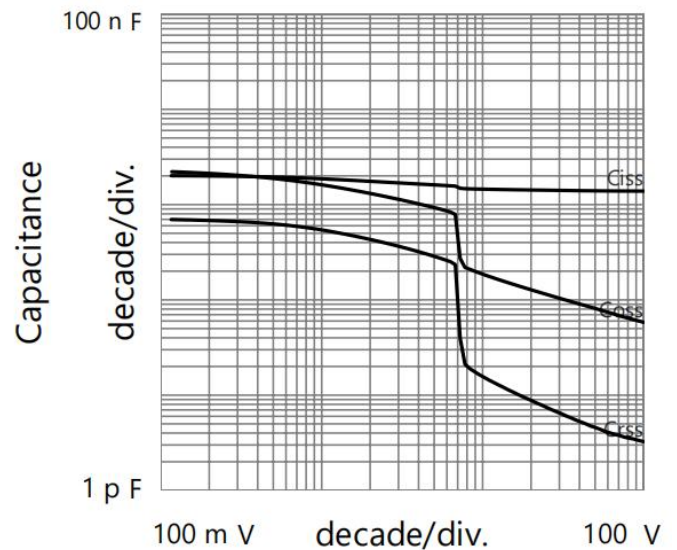
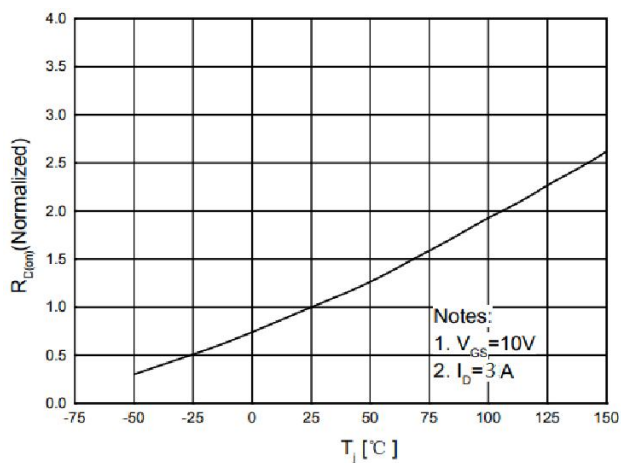
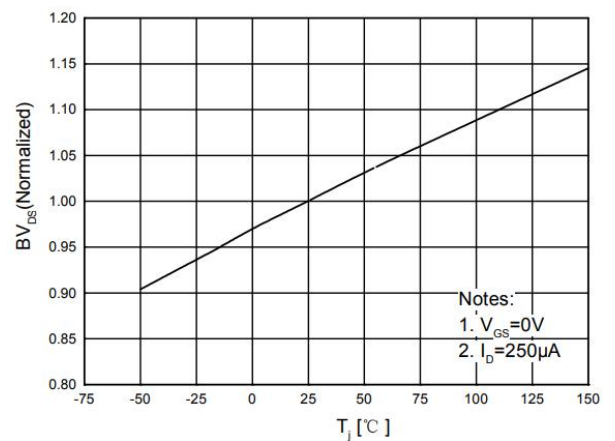


Fig 4. Capacitance Characteristics

Fig 5. $R_{DS(ON)}$ vs junction temperatureFig 6. BV_{DS} vs junction temperature

特征曲线 ELECTRICAL CHARACTERISTICS

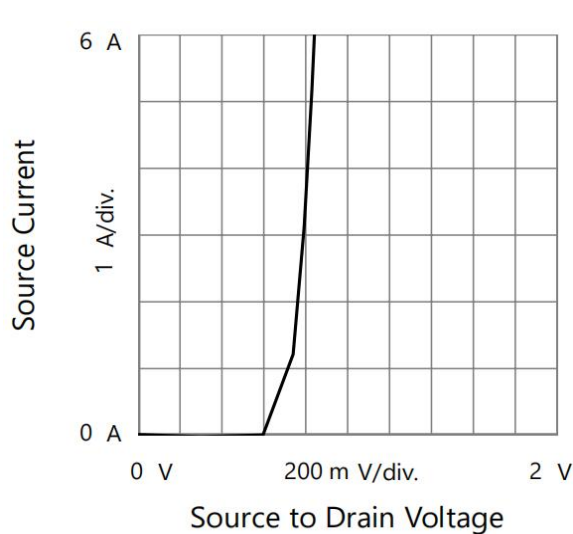


Fig 7 . Forward characteristics of reverse diode

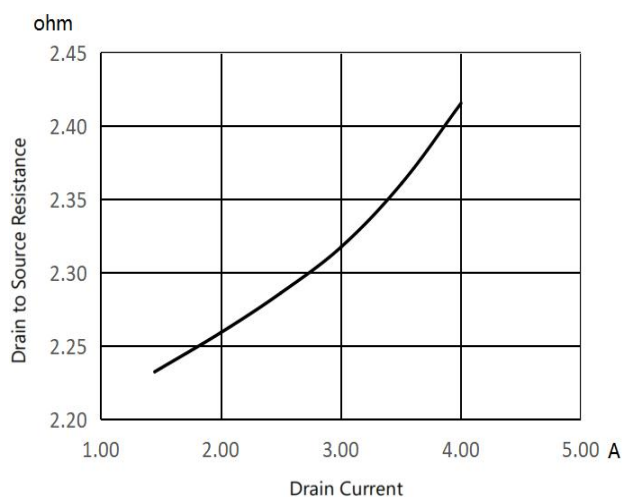
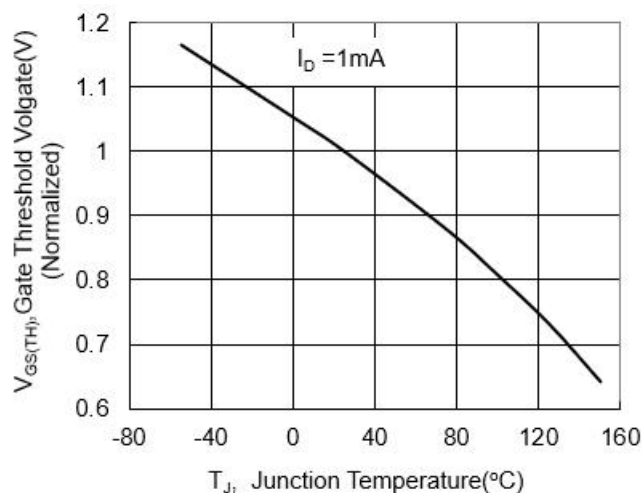
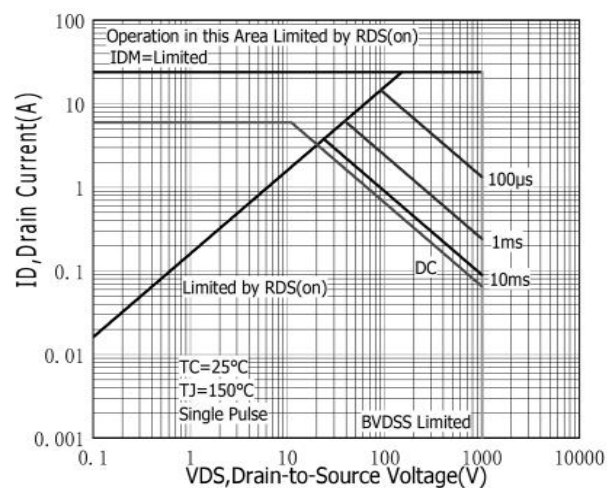
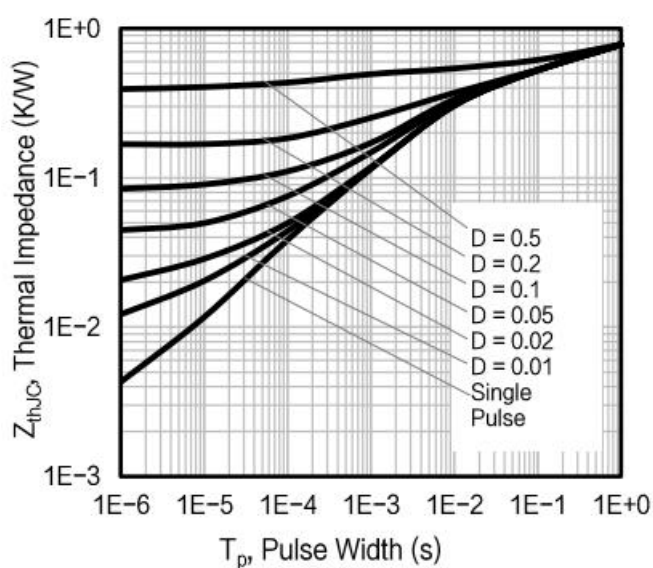
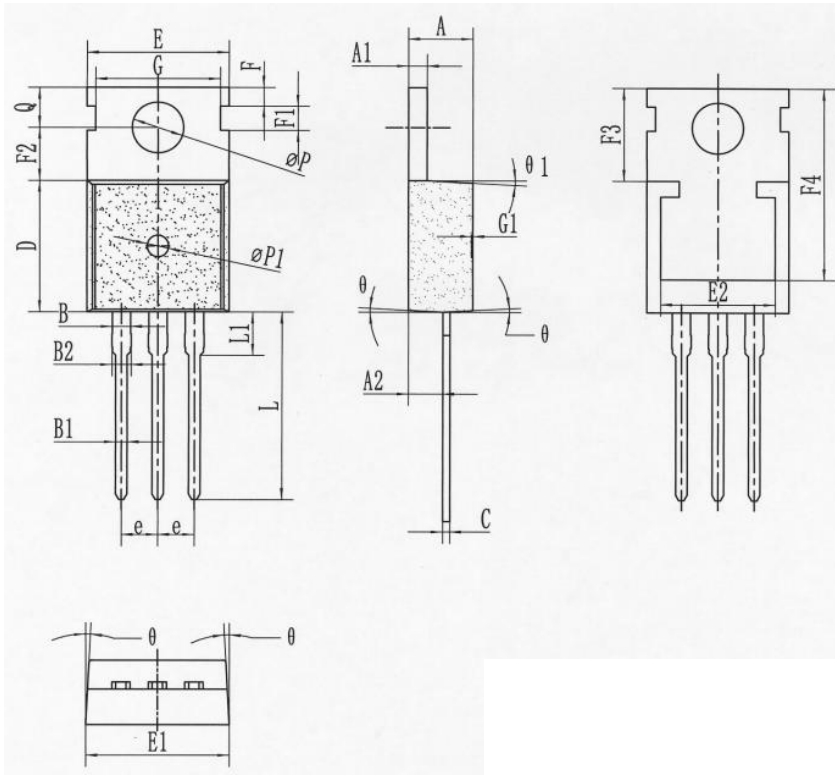
Fig 8. Drain-source on-state resistance
 $T_J = 25^\circ\text{C}$ Fig 9 . $V_{GS(TH)}$ vs junction temperatureFig 10. Safe operating area $T_c = 25^\circ\text{C}$ 

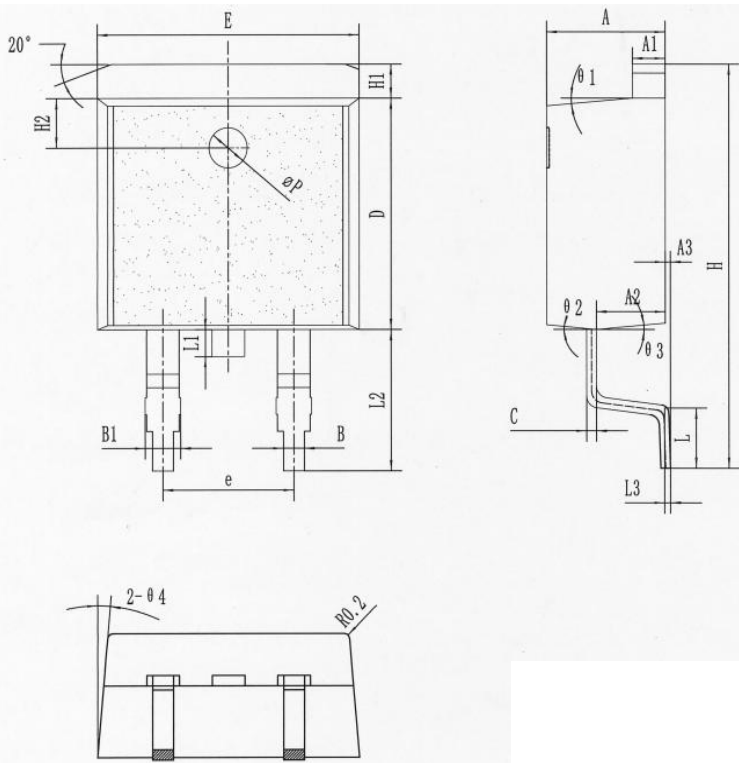
Fig 11. Transient thermal impedance

外形尺寸 PACKAGE MECHANICAL DATA
TO-220C



COMMON DIMENSIONS			
SYMBOL	MM		
	MIN	NOM	MAX
A	4.40	4.50	4.60
A1	1.25	1.30	1.35
A2	2.30	2.40	2.50
B	1.22	1.27	1.32
B1	0.70	0.80	0.90
B2	1.32	1.37	1.42
C	0.45	0.50	0.55
D	9.10	9.20	9.30
E	9.70	9.90	10.10
E1	9.90	10.00	10.10
E2	7.80	8.00	8.20
e	2.54 BSC		
F	1.22	1.30	1.38
F1	1.60	1.70	1.80
F2	3.60	3.70	3.80
F3	6.30	6.50	6.70
F4	13.10	13.40	13.70
G	8.60	8.70	8.80
G1	0.05	0.10	0.15
L	12.80	13.10	13.40
L1	2.80	3.00	3.20
ΦP	3.50	3.60	3.70
ΦP1	1.40	1.50	1.60
Q	2.70	2.80	2.90
θ	1°	3°	5°
θ1	1°	3°	5°

TO-263



COMMON DIMENSIONS			
SYMBOL	MM		
	MIN	NOM	MAX
A	4.50	4.60	4.70
A1	1.22	1.27	1.32
A2	2.57	2.67	2.77
A3	0.00		0.20
B	0.76	0.81	0.87
B1	1.32	1.37	1.42
C	0.33	0.38	0.43
D	8.55	8.65	8.75
e	5.08 BSC		
E	10.06	10.16	10.26
H	14.80	15.00	15.20
H1	1.17	1.27	1.37
H2	1.85 REF		
L	2.09	2.39	2.69
L1	0.80	1.00	1.20
L2	4.88	5.08	5.28
L3	0.25 REF		
ΦP	1.40	1.50	1.60
θ1	3°	5°	7°
θ2	3°	5°	7°
θ3	3°	5°	7°
θ4	3°	5°	7°