

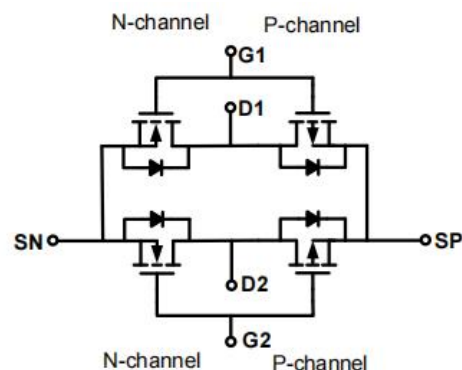
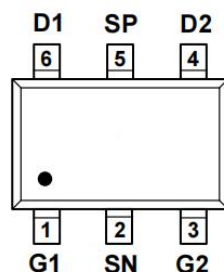


安徽富信半导体科技有限公司

ANHUI FOSAN SEMICONDUCTOR TECHNOLOGY CO. , LTD.

FS6604B

SOT-23-6L 20/-20V 2N+2P Enhancement 增强型 MOS Half Bridge 半桥



■ Absolute Maximum Ratings 最大额定值

Characteristic 特性参数	Symbol 符号	Rat 额定值	Unit 单位
Drain-Source Voltage 漏极-源极电压	BV_{DSS}	20/-20	V
Gate- Source Voltage 栅极-源极电压	V_{GS}	$\pm 10/\pm 10$	V
Drain Current (continuous)漏极电流-连续	I_D (at $T_A = 25^\circ C$)	3/-2	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	10/-8	A
Total Device Dissipation 总耗散功率	P_D (at $T_A = 25^\circ C$)	700/700	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	178/178	$^\circ C/W$
Junction/Storage Temperature 结温/储存温度	T_J, T_{stg}	-55~150	$^\circ C$

■ Device Marking 产品字标

FS6604B=6604B



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■ Electrical Characteristics 电特性(N)

($T_A=25^{\circ}\text{C}$ unless otherwise noted 如无特殊说明, 温度为 25°C)

Characteristic 特性参数	Symbol 符号	Min 最小值	Typ 典型值	Max 最大值	Unit 单位
Drain-Source Breakdown Voltage 漏极-源极击穿电压($I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$)	BV_{DSS}	20	—	—	V
Gate Threshold Voltage 栅极开启电压($I_D=250\mu\text{A}$, $V_{GS}=V_{DS}$)	$V_{GS(th)}$	0.55	0.78	1.1	V
Zero Gate Voltage Drain Current 零栅压漏极电流($V_{GS}=0\text{V}$, $V_{DS}=20\text{V}$)	I_{DSS}	—	—	1	μA
Gate Body Leakage 栅极漏电流($V_{GS}=\pm 10\text{V}$, $V_{DS}=0\text{V}$)	I_{GSS}	—	—	± 100	nA
Static Drain-Source On-State Resistance 静态漏源导通电阻($I_D=3\text{A}$, $V_{GS}=4.5\text{V}$) ($I_D=2\text{A}$, $V_{GS}=2.5\text{V}$)	$R_{DS(on)}$	—	40 55	52 80	$\text{m}\Omega$
Diode Forward Voltage Drop 内附二极管正向压降($I_{SD}=3\text{A}$, $V_{GS}=0\text{V}$)	V_{SD}	—	—	1.2	V
Input Capacitance 输入电容 ($V_{GS}=0\text{V}$, $V_{DS}=10\text{V}$, $f=1\text{MHz}$)	C_{ISS}	—	220	—	pF
Common Source Output Capacitance 共源输出电容($V_{GS}=0\text{V}$, $V_{DS}=10\text{V}$, $f=1\text{MHz}$)	C_{OSS}	—	34	—	pF
Reverse Transfer Capacitance 反馈电容($V_{GS}=0\text{V}$, $V_{DS}=10\text{V}$, $f=1\text{MHz}$)	C_{RSS}	—	26	—	pF
Total Gate Charge 栅极电荷密度 ($V_{DS}=10\text{V}$, $I_D=3\text{A}$, $V_{GS}=4.5\text{V}$)	Q_g	—	3.6	—	nC
Gate Source Charge 栅源电荷密度 ($V_{DS}=10\text{V}$, $I_D=3\text{A}$, $V_{GS}=4.5\text{V}$)	Q_{gs}	—	0.9	—	nC
Gate Drain Charge 栅漏电荷密度 ($V_{DS}=10\text{V}$, $I_D=3\text{A}$, $V_{GS}=4.5\text{V}$)	Q_{gd}	—	0.8	—	nC
Turn-ON Delay Time 开启延迟时间 ($V_{DS}=10\text{V}$ $I_D=3\text{A}$, $R_{GEN}=3\Omega$, $V_{GS}=4.5\text{V}$)	$t_{d(on)}$	—	8	—	ns
Turn-ON Rise Time 开启上升时间 ($V_{DS}=10\text{V}$ $I_D=3\text{A}$, $R_{GEN}=3\Omega$, $V_{GS}=4.5\text{V}$)	t_r	—	58	—	ns
Turn-OFF Delay Time 关断延迟时间 ($V_{DS}=10\text{V}$ $I_D=3\text{A}$, $R_{GEN}=3\Omega$, $V_{GS}=4.5\text{V}$)	$t_{d(off)}$	—	15	—	ns
Turn-OFF Fall Time 关断下降时间 ($V_{DS}=10\text{V}$ $I_D=3\text{A}$, $R_{GEN}=3\Omega$, $V_{GS}=4.5\text{V}$)	t_f	—	53	—	ns



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■ Electrical Characteristics 电特性(P)

($T_A=25^{\circ}\text{C}$ unless otherwise noted 如无特殊说明, 温度为 25°C)

Characteristic 特性参数	Symbol 符号	Min 最小值	Typ 典型值	Max 最大值	Unit 单位
Drain-Source Breakdown Voltage 漏极-源极击穿电压($I_D = -250\mu\text{A}$, $V_{GS}=0\text{V}$)	BV_{DSS}	-20	—	—	V
Gate Threshold Voltage 栅极开启电压($I_D = -250\mu\text{A}$, $V_{GS} = V_{DS}$)	$V_{GS(th)}$	-0.4	-0.62	-1	V
Zero Gate Voltage Drain Current 零栅压漏极电流($V_{GS}=0\text{V}$, $V_{DS}= -20\text{V}$)	I_{DSS}	—	—	-1	μA
Gate Body Leakage 栅极漏电流($V_{GS}=\pm 12\text{V}$, $V_{DS}=0\text{V}$)	I_{GSS}	—	—	± 100	nA
Static Drain-Source On-State Resistance 静态漏源导通电阻($I_D= -2\text{A}$, $V_{GS}= -4.5\text{V}$) ($I_D= -1.5\text{A}$, $V_{GS}= -2.5\text{V}$)	$R_{DS(ON)}$	—	90 115	120 150	$\text{m}\Omega$
Diode Forward Voltage Drop 内附二极管正向压降($I_{SD}= -2\text{A}$, $V_{GS}=0\text{V}$)	V_{SD}	—	—	-1.2	V
Input Capacitance 输入电容 ($V_{GS}=0\text{V}$, $V_{DS}= -10\text{V}$, $f=1\text{MHz}$)	C_{ISS}	—	327	—	pF
Common Source Output Capacitance 共源输出电容($V_{GS}=0\text{V}$, $V_{DS}= -10\text{V}$, $f=1\text{MHz}$)	C_{OSS}	—	62	—	pF
Reverse Transfer Capacitance 反馈电容($V_{GS}=0\text{V}$, $V_{DS}= -10\text{V}$, $f=1\text{MHz}$)	C_{RSS}	—	55	—	pF
Total Gate Charge 栅极电荷密度 ($V_{DS}= -10\text{V}$, $I_D= -2\text{A}$, $V_{GS}= -4.5\text{V}$)	Q_g	—	4.5	—	nC
Gate Source Charge 栅源电荷密度 ($V_{DS}= -10\text{V}$, $I_D= -2\text{A}$, $V_{GS}= -4.5\text{V}$)	Q_{gs}	—	0.85	—	nC
Gate Drain Charge 栅漏电荷密度 ($V_{DS}= -10\text{V}$, $I_D= -2\text{A}$, $V_{GS}= -4.5\text{V}$)	Q_{gd}	—	1.4	—	nC
Turn-ON Delay Time 开启延迟时间 ($V_{DS}= -10\text{V}$, $I_D= -1\text{A}$, $R_{GEN}=2.5\Omega$, $V_{GS}= -4.5\text{V}$)	$t_{d(on)}$	—	6	—	ns
Turn-ON Rise Time 开启上升时间 ($V_{DS}= -10\text{V}$, $I_D= -1\text{A}$, $R_{GEN}=2.5\Omega$, $V_{GS}= -4.5\text{V}$)	t_r	—	30	—	ns
Turn-OFF Delay Time 关断延迟时间 ($V_{DS}= -10\text{V}$, $I_D= -1\text{A}$, $R_{GEN}=2.5\Omega$, $V_{GS}= -4.5\text{V}$)	$t_{d(off)}$	—	45	—	ns
Turn-OFF Fall Time 关断下降时间 ($V_{DS}= -10\text{V}$, $I_D= -1\text{A}$, $R_{GEN}=2.5\Omega$, $V_{GS}= -4.5\text{V}$)	t_f	—	46	—	ns



■ Typical Characteristic Curve 典型特性曲线(N)

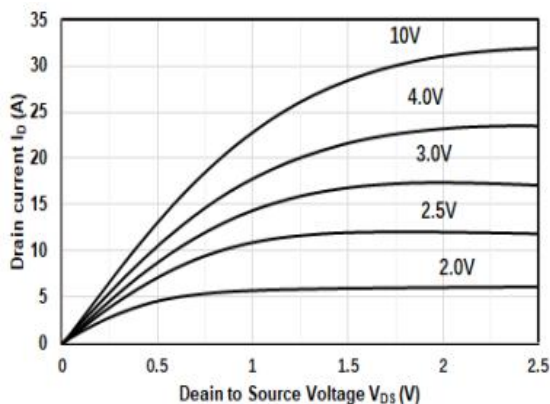


Figure 1: Output Characteristics

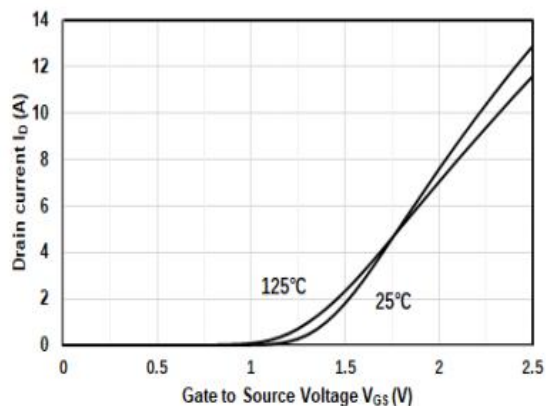


Figure 2: Transfer Characteristics

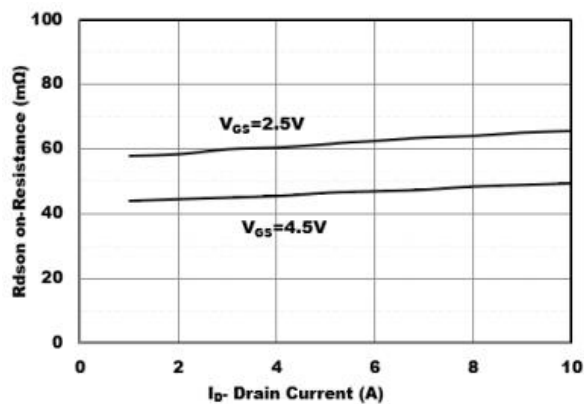


Figure 3: On-Resistance vs. Drain Current

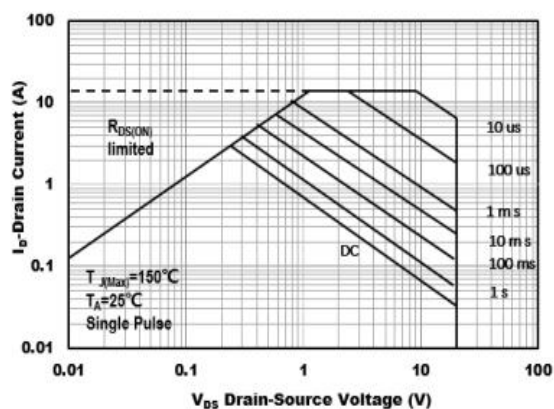


Figure 4: Safe Operating Area

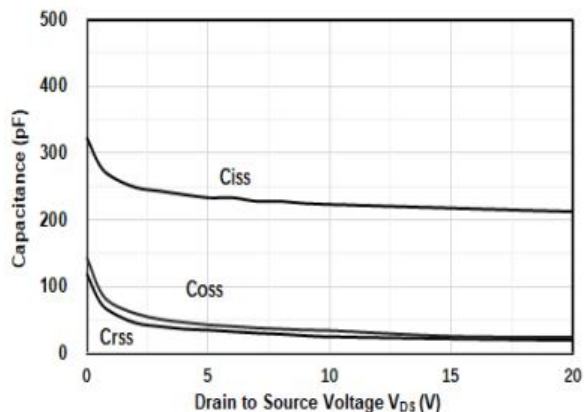


Figure 5: Capacitance Characteristics

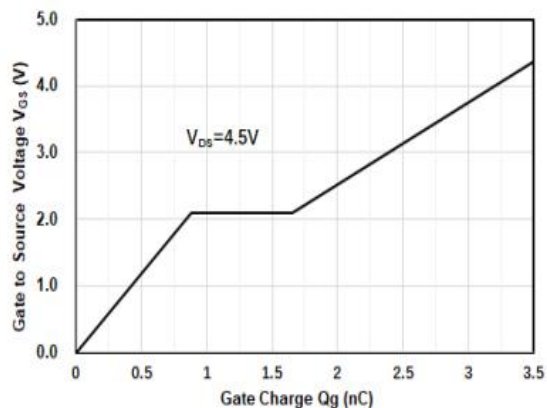


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线(P)

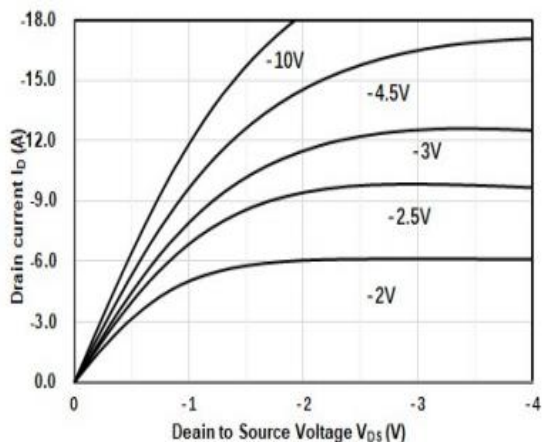


Figure 1: Output Characteristics

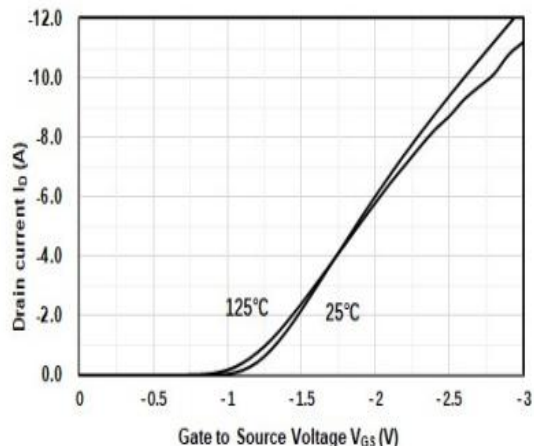


Figure 2: Transfer Characteristics

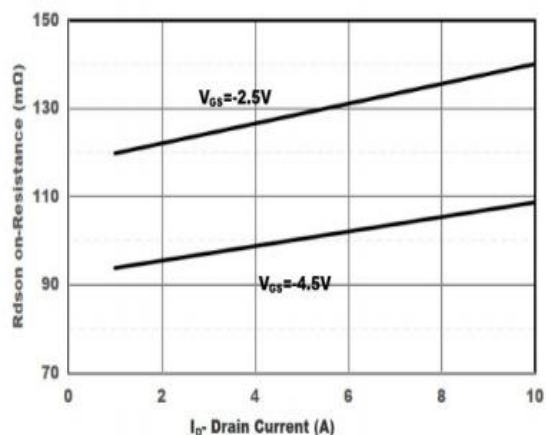


Figure 3: On-Resistance vs. Drain Current

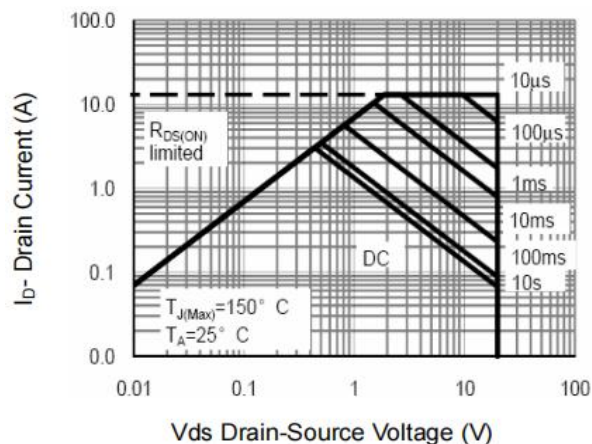


Figure 4: Safe Operating Area

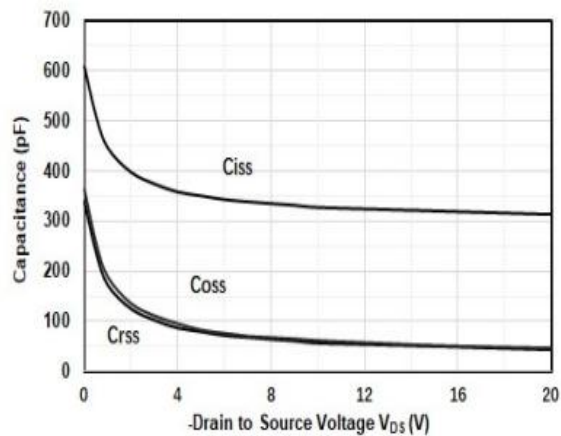


Figure 5: Capacitance Characteristics

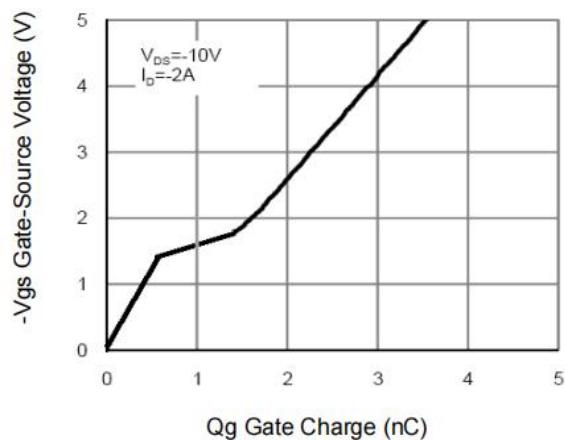
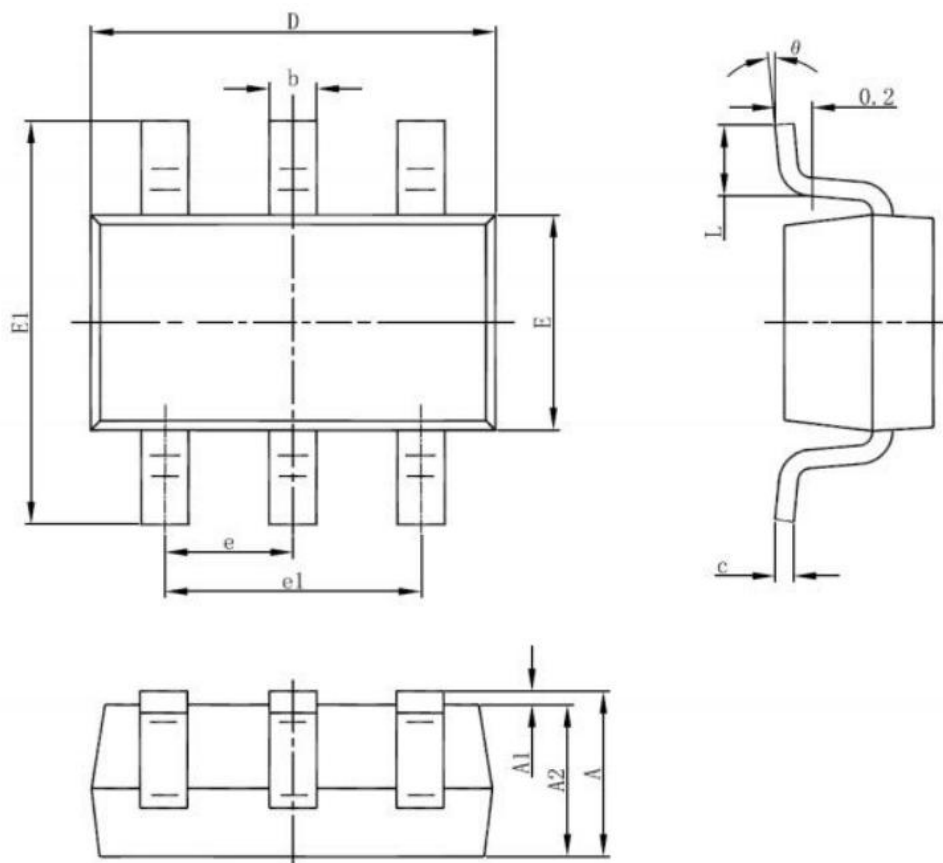


Figure 6: Gate-Charge Characteristics

■ Dimension 外形封装尺寸



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.600REF		0.024REF	
θ	0°	8°	0°	8°