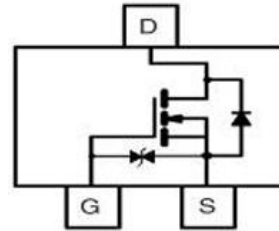


SOT-23 50V N Channel ESD Protection 沟道带静电保护
MOS Field Effect Transistor 场效应管



■ **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}	50	V
Gate- Source Voltage 栅极-源极电压	V_{GS}	± 20	V
Drain Current (continuous)漏极电流-连续	I_D (at $T_A = 25^\circ C$)	220	mA
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	880	mA
Total Device Dissipation 总耗散功率	P_D (at $T_A = 25^\circ C$)	350	mW
ESD Protected Up to 人体模式静电保护范围	ESD(HBM)	2300	V
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	350	$^\circ C/W$
Junction/Storage Temperature 结温/储存温度	T_J, T_{stg}	-55~150	$^\circ C$

■ **Device Marking 产品字标**

BSS138K=138K

■ Electrical Characteristics 电特性

 (T_A=25℃ unless otherwise noted 如无特殊说明, 温度为 25℃)

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 =250μA, V _{GS} =0V)	BV _{DSS}	50	65	—	V
Gate Threshold Voltage 栅极开启电压(I _D =250μA, V _{GS} =V _{DS})	V _{GS(th)}	0.6	1.1	1.6	V
Zero Gate Voltage Drain Current 零栅压漏极电流(V _{GS} =0V, V _{DS} =50V)	I _{DSS}	—	—	1	μA
Gate Body Leakage(V _{GS} =±10V, V _{DS} =0V) 栅极漏电流(V _{GS} =±12V, V _{DS} =0V)	I _{GSS}	—	±110 ±0.3	±500 ±10	nA μA
Static Drain-Source On-State Resistance 静态漏源导通电阻(I _D =220mA, V _{GS} =10V) (I _D =200mA, V _{GS} =5V)	R _{DS(on)}	—	1 1.3	2 3.0	Ω
Diode Forward Voltage Drop 内附二极管正向压降(I _{SD} =220mA, V _{GS} =0V)	V _{SD}	—	—	1.3	V
Forward Trans conductance 正向传输导纳(V _{DS} =10V, I _D =200mA)	g _{FS}	0.2	—	—	S
Input Capacitance 输入电容 (V _{GS} =0V, V _{DS} =25V, f=1MHz)	C _{ISS}	—	30	—	pF
Common Source Output Capacitance 共源输出电容(V _{GS} =0V, V _{DS} =25V, f=1MHz)	C _{OSS}	—	15	—	pF
Reverse Transfer Capacitance 反馈电容(V _{GS} =0V, V _{DS} =25V, f=1MHz)	C _{RSS}	—	6	—	pF
Total Gate Charge 栅极电荷密度 (V _{DS} =25V, I _D =200mA, V _{GS} =10V)	Q _g	—	2.4	—	nC
Turn-ON Delay Time 开启延迟时间 (V _{DS} =30V I _D =220mA, R _{GEN} =6 Ω, V _{GS} =10V)	t _{d(on)}	—	5	—	ns
Turn-ON Rise Time 开启上升时间 (V _{DS} =30V I _D =220mA, R _{GEN} =6 Ω, V _{GS} =10V)	t _r	—	5	—	ns
Turn-OFF Delay Time 关断延迟时间 (V _{DS} =30V I _D =220mA, R _{GEN} =6 Ω, V _{GS} =10V)	t _{d(off)}	—	60	—	ns
Turn-OFF Fall Time 关断下降时间 (V _{DS} =30V I _D =220mA, R _{GEN} =6 Ω, V _{GS} =10V)	t _f	—	35	—	ns

■ Typical Characteristic Curve 典型特性曲线

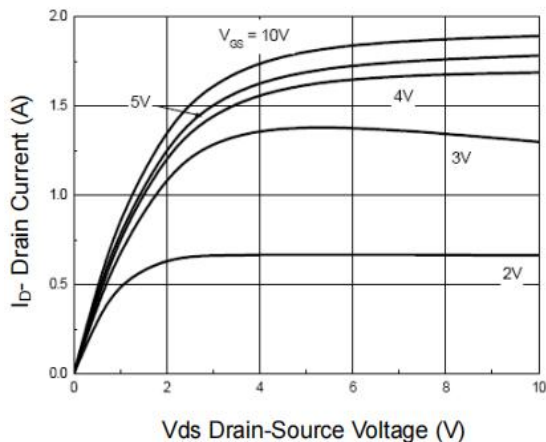


Figure 1: Output Characteristics

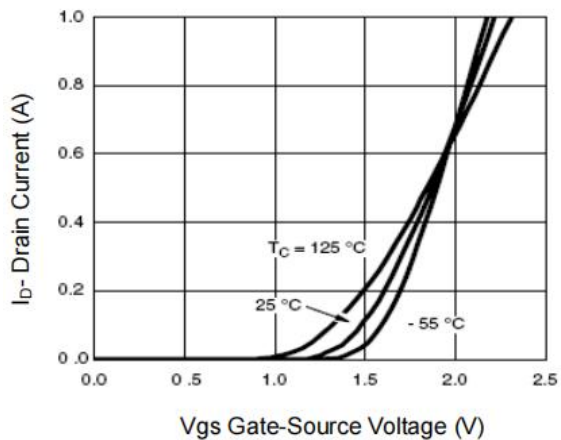


Figure 2: Transfer Characteristics

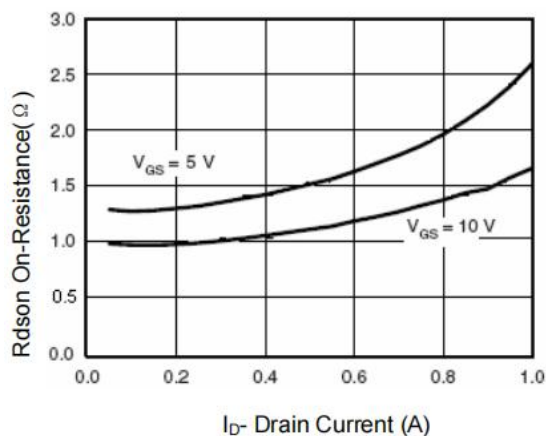


Figure 3: On-Resistance vs. Drain Current

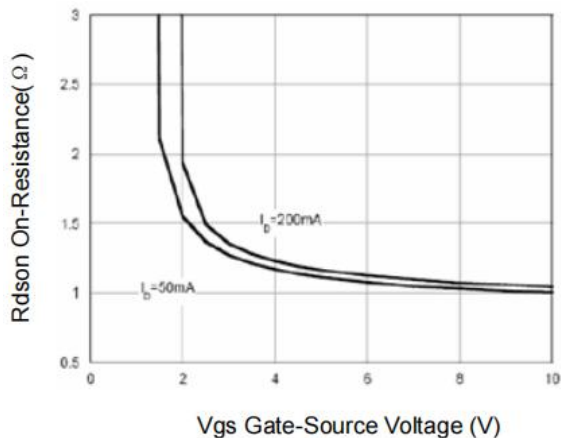


Figure 4: On-Resistance vs. V_{GS}

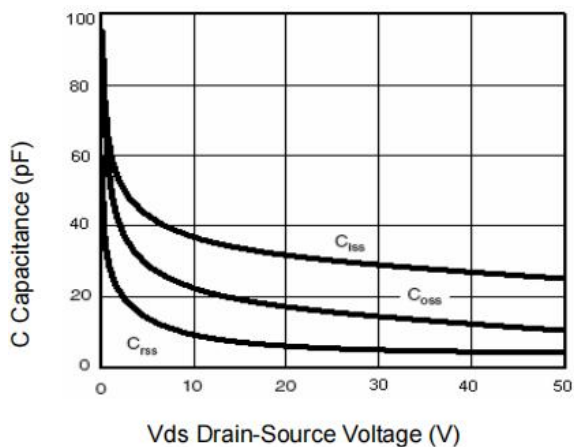


Figure 5: Capacitance Characteristics

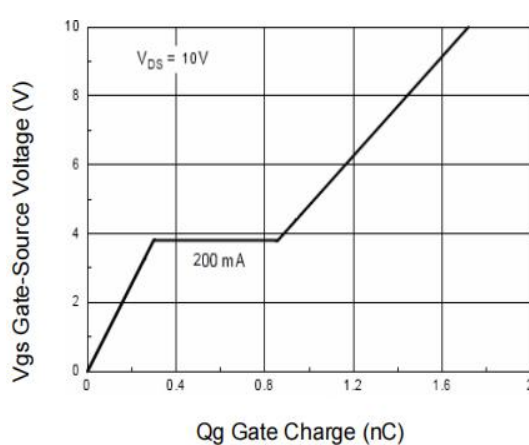


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线

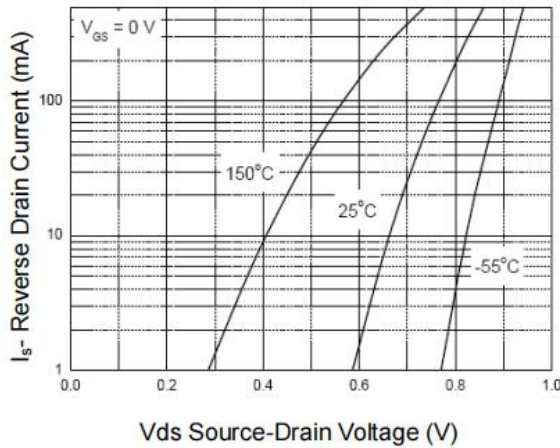


Figure 7: Diode Characteristics

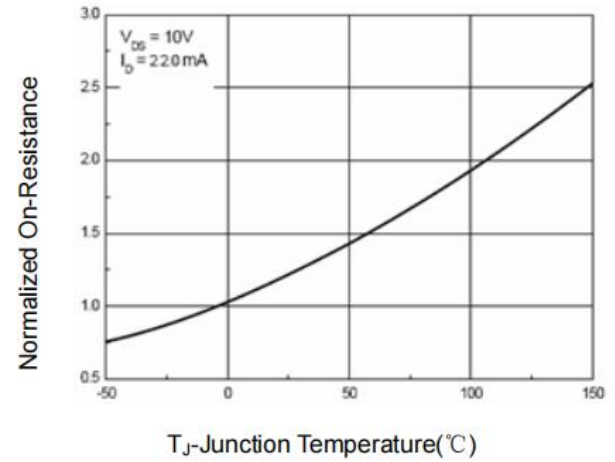


Figure 8: On-Resistance vs. T_J

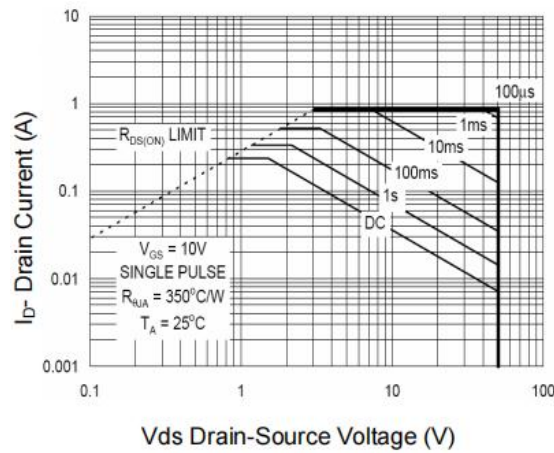


Figure 9: Safe Operating Area

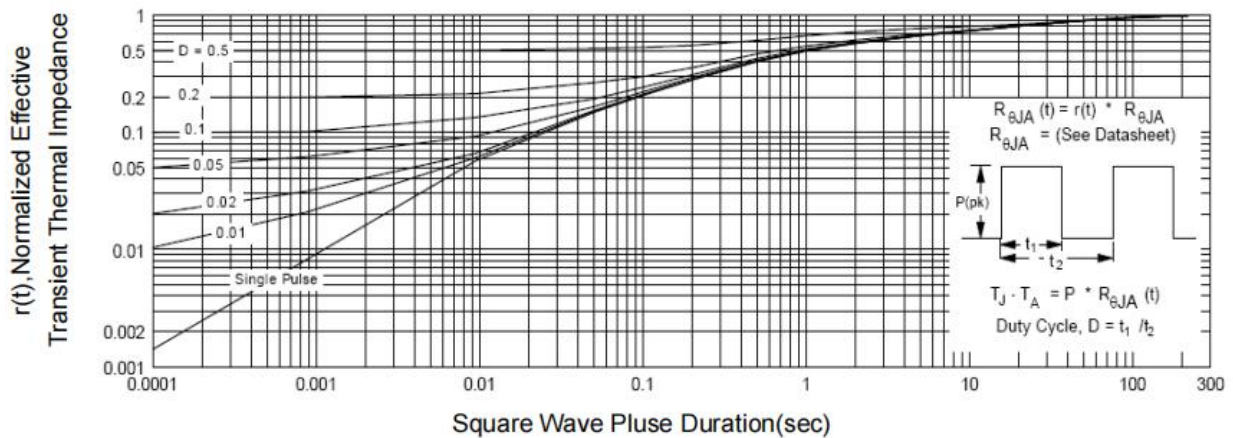
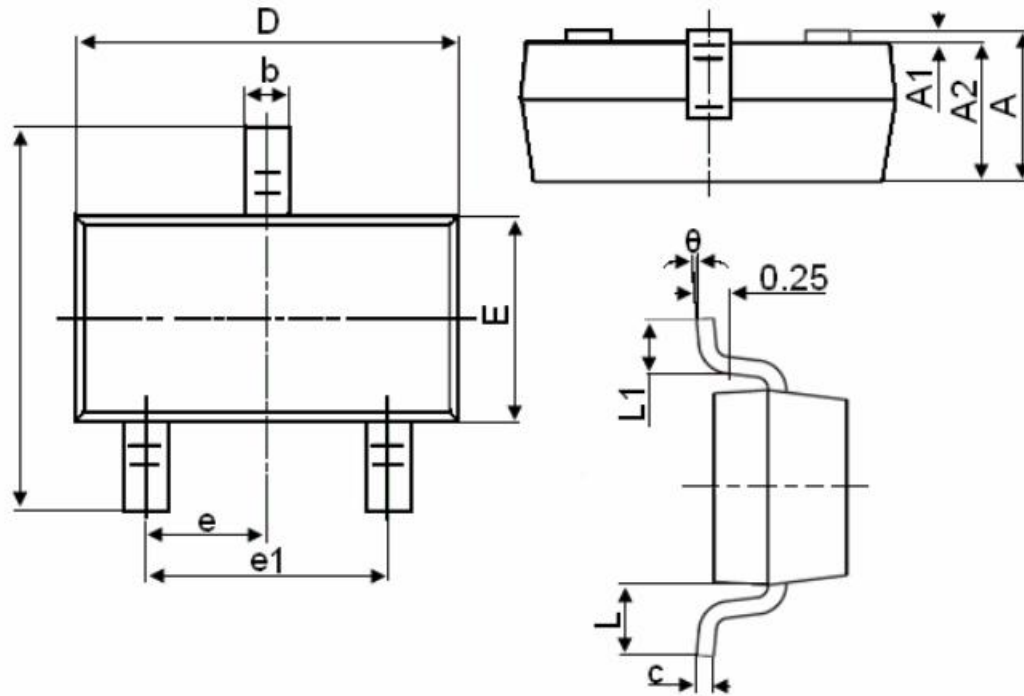


Figure 10: Transient Thermal Impedance

■ Dimension 外形封装尺寸



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°