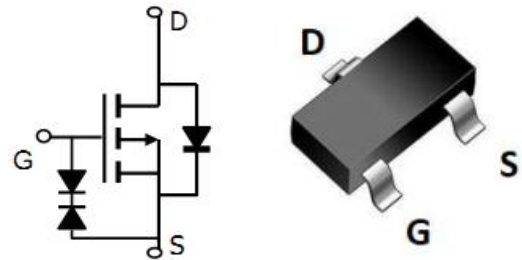


**SOT-523 -20V P Channel Enhancement ESD Protection 沟道增强型带静电保护
MOS Field Effect Transistor 场效应管**



■ **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}	-20	V
Gate- Source Voltage 栅极-源极电压	V_{GS}	± 6	V
Drain Current (continuous)漏极电流-连续	I_D (at $T_A = 25^\circ C$)	-0.6	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	-3.3	A
Total Device Dissipation 总耗散功率	P_D (at $T_A = 25^\circ C$)	150	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	887	$^\circ C/W$
ESD Protected Up to 人体模式静电保护范围	ESD(HBM)	2.0	kV
Junction/Storage Temperature 结温/储存温度	T_J, T_{stg}	-55~150	$^\circ C$

■ **Device Marking 产品字标**

FS3139KE=B

■ Electrical Characteristics 电特性

($T_A=25^{\circ}\text{C}$ 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	—	-1	V
Zero Gate Voltage Drain Current 零栅压漏极电流($V_{GS}=0\text{V}, V_{DS}= -16\text{V}$)	I_{DSS}	—	—	-1	μA
Gate Body Leakage 栅极漏电流($V_{GS}=\pm 4.5\text{V}, V_{DS}=0\text{V}$)	I_{GSS}	—	—	± 10	μA
Static Drain-Source On-State Resistance 静态漏源导通电阻($I_D = -0.35\text{A}, V_{GS}= -4.5\text{V}$) ($I_D = -0.3\text{A}, V_{GS}= -2.5\text{V}$) ($I_D = -0.2\text{A}, V_{GS}= -1.8\text{V}$)	$R_{DS(ON)}$	—	460 600 1200	700 850 1500	$\text{m}\Omega$
Diode Forward Voltage Drop 内附二极管压降($I_{SD}=-0.15\text{A}, V_{GS}=0\text{V}$)	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}	—	43	—	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}	—	3	—	pF
Reverse Transfer Capacitance 反馈电容($V_{GS}=0\text{V}, V_{DS}= -10\text{V}, f=1\text{MHz}$)	C_{RSS}	—	1.8	—	pF
Total Gate Charge 栅极电荷密度 ($V_{DS}= -10\text{V}, I_D = -150\text{mA}, V_{GS}=10\text{V}$)	Q_g	—	1.7	—	nC
Gate Source Charge 栅源电荷密度 ($V_{DS}= -10\text{V}, I_D = -150\text{mA}, V_{GS}=10\text{V}$)	Q_{gs}	—	0.57	—	nC
Gate Drain Charge 栅漏电荷密度 ($V_{DS}= -10\text{V}, I_D = -150\text{mA}, V_{GS}=10\text{V}$)	Q_{gd}	—	0.25	—	nC
Turn-ON Delay Time 开启延迟时间 ($V_{DS}=-10\text{V}, I_D=-150\text{mA}, R_{GEN}=3\Omega, V_{GS}=-4.5\text{V}$)	$t_{d(on)}$	—	9	—	ns
Turn-ON Rise Time 开启上升时间 ($V_{DS}=-10\text{V}, I_D=-150\text{mA}, R_{GEN}=3\Omega, V_{GS}=-4.5\text{V}$)	t_r	—	19	—	ns
Turn-OFF Delay Time 关断延迟时间 ($V_{DS}=-10\text{V}, I_D=-150\text{mA}, R_{GEN}=3\Omega, V_{GS}=-4.5\text{V}$)	$t_{d(off)}$	—	15	—	ns
Turn-OFF Fall Time 关断下降时间 ($V_{DS}=-10\text{V}, I_D=-150\text{mA}, R_{GEN}=3\Omega, V_{GS}=-4.5\text{V}$)	t_f	—	77	—	ns

■ Typical Characteristic Curve 典型特性曲线

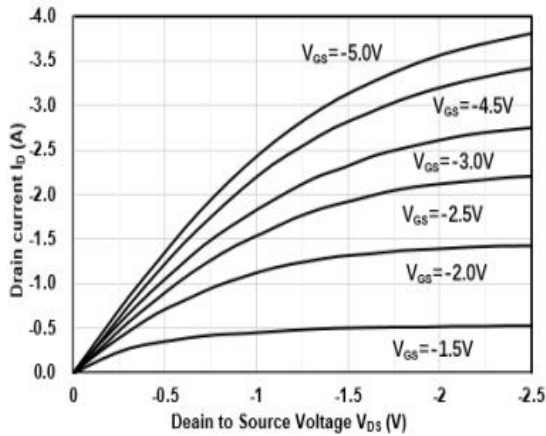


Figure 1: Output Characteristics

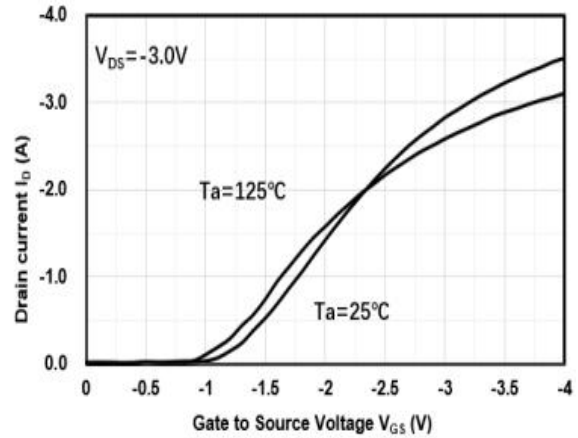


Figure 2: Transfer Characteristics

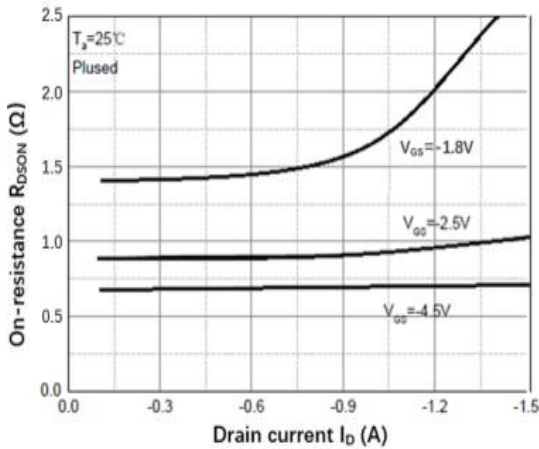


Figure 3: On-Resistance vs. Drain Current

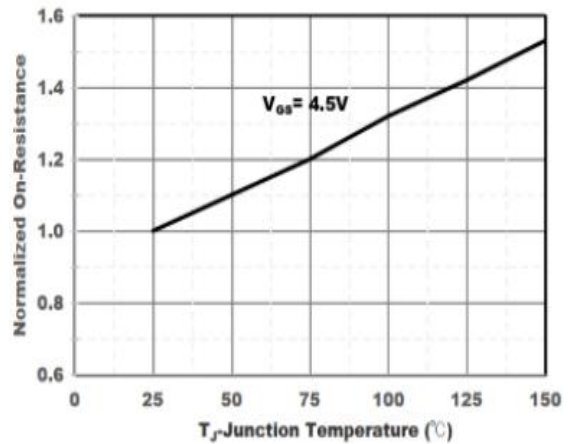


Figure 4: On-Resistance vs. Temperature

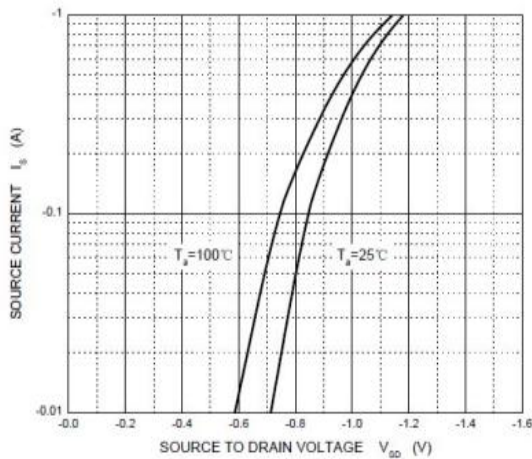


Figure 5: Diode Characteristics

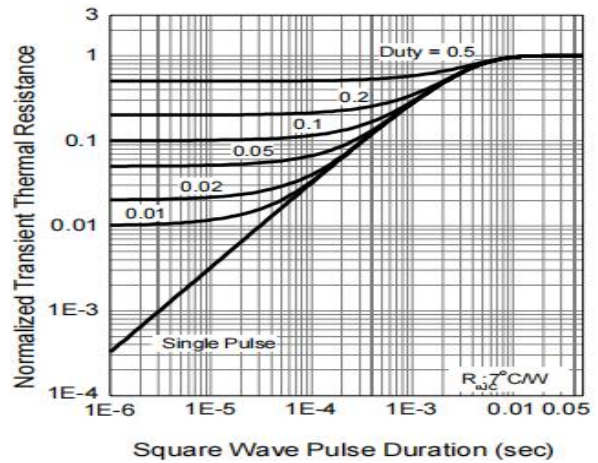
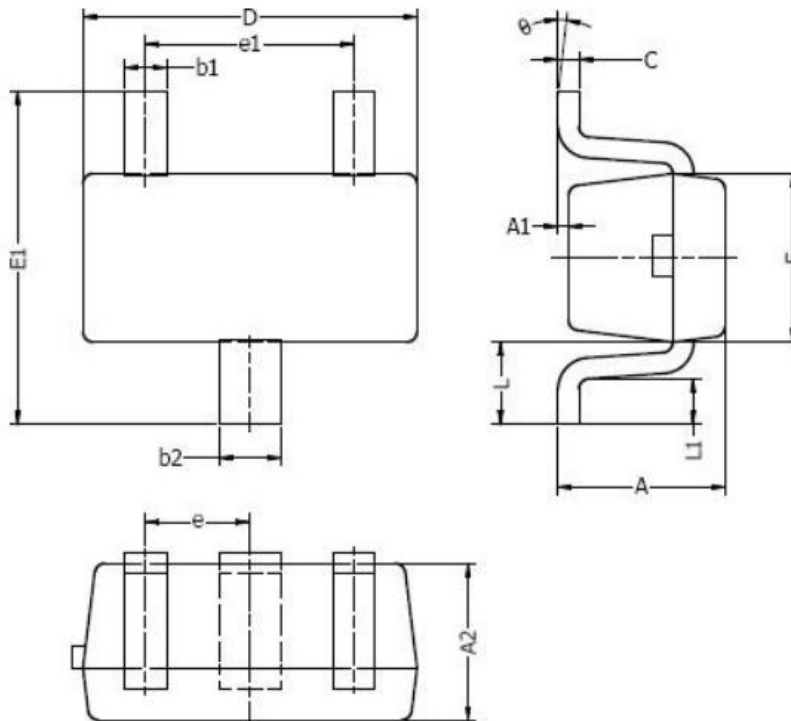


Figure 6: Transient Thermal Response Curve

■ Dimension 外形封装尺寸



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.70	0.90	0.028	0.035
A1	0.00	0.10	0.000	0.004
A2	0.70	0.80	0.028	0.031
b1	0.15	0.25	0.006	0.010
b2	0.25	0.35	0.010	0.014
c	0.10	0.20	0.004	0.008
D	1.50	1.70	0.059	0.067
E	0.70	0.90	0.028	0.035
E1	1.45	1.75	0.057	0.069
e	0.50 TYP.		0.020 TYP.	
e1	0.90	1.10	0.035	0.043
L	0.40 REF.		0.016 REF.	
L1	0.10	0.30	0.004	0.012
θ	0°	8°	0°	8°