

●特点：热阻低 开关速度快 输入阻抗高 符合RoHS规范

●FEATURES: ■LOW THERMAL RESISTANCE ■FAST SWITCHING ■HIGH INPUT RESISTANCE
■RoHS COMPLIANT

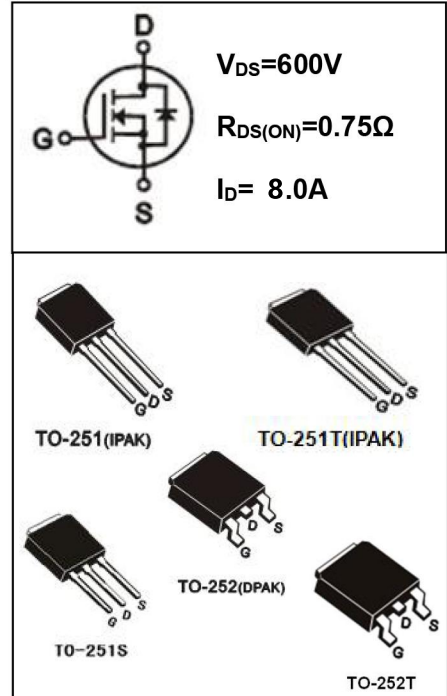
●应用：电子镇流器 电子变压器 开关电源

●APPLICATION: ■ELECTRONIC BALLAST ■ELECTRONIC TRANSFORMER ■SWITCH MODE POWER SUPPLY

●最大额定值（TC=25°C）

●Absolute Maximum Ratings (Tc=25°C) TO-251T/TO-251S/252/252T

参数 PARAMETER	符号 SYMBOL	额定值 VALUE	单位 UNIT
漏-源电压 Drain-source Voltage	V_{DS}	600	V
栅-源电压 gate-source Voltage	V_{GS}	± 30	V
漏极电流 Continuous Drain Current TC=25°C	I_D	8.0	A
漏极电流 Continuous Drain Current TC=100°C	I_D	6.0	A
最大脉冲电流 Drain Current — Pulsed ①	I_{DM}	40	A
耗散功率 Power Dissipation	P_{tot}	50	W
最高结温 Junction Temperature	T_J	150	°C
存储温度 Storage Temperature	T_{STG}	-55-150	°C
单脉冲雪崩能量 Single Pulse Avalanche Energy ②	E_{AS}	510	mJ



●电特性（Tc=25°C）

●Electronic Characteristics (Tc=25°C)

参数 PARAMETER	符号 SYMBOL	测试条件 TEST CONDITION	最小值 MIN	典型值 TYP	最大值 MAX	单位 UNIT
漏-源击穿电压 Drain-source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	600			V
击穿电压温度系数 Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	$I_D=250\mu A$, Referenced to 25°C		0.65		V/°C
栅极开启电压 Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	2.0		4.0	V
漏-源漏电流 Drain-source Leakage Current	I_{DSS}	$V_{DS}=650V, V_{GS}=0V, T_J=25^\circ C$			1	μA
		$V_{DS}=480V, V_{GS}=0V, T_J=125^\circ C$			10	μA
跨导 Forward Transconductance	g_{fs}	$V_{DS}=15V, I_D=5.0A$ ③		7.0		S

参数 PARAMETER	符号 SYMBOL	测试条件 TEST CONDITION	最小值 MIN	典型值 TYP	最大值 MAX	单位 UNIT
栅极漏电流 Gate-body Leakage Current ($V_{DS} = 0$)	I_{GSS}	$V_{GS} = \pm 30V$			± 100	nA
漏-源导通电阻 Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 5.0A$ ③		0.75	0.95	Ω
输入电容 Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V$ $F = 1.0MHz$		1650		pF
输出电容 Output Capacitance	C_{oss}			150		
反馈电容 Feedback Capacitance	C_{rss}			7		
关断延迟 Turn -Off Delay Time	$T_d(off)$	$V_{DD} = 325V, I_D = 10.0A$ $R_G = 25\Omega$ ③		50		ns
栅极电荷 Total Gate Charge	Q_g	$I_D = 10.0A, V_{DS} = 520V$ $V_{GS} = 10V$ ③		32		nC
栅源电荷 Gate-to-Source Charge	Q_{gs}			9		nC
栅漏电荷 Gate-to-Drain Charge	Q_{gd}			10		nC
二极管正向电流 Continuous Diode Forward Current	I_s				10.0	A
二极管正向压降 Diode Forward Voltage	V_{SD}	$T_j = 25^\circ C, I_s = 10.0A$ $V_{GS} = 0V$ ③			1.4	V
反向恢复时间 Reverse Recovery Time	t_{rr}	$T_j = 25^\circ C, I_f = 10.0A$ $di/dt = 100A/\mu s$ ③		365		ns
反向恢复电荷 Reverse Recovery Charge	Q_{rr}			3.4		μC

● 热特性

● Thermal Characteristics

参数 PARAMETER	符号 SYMBOL	最大值 MAX	单位 UNIT
热阻结-壳 Thermal Resistance Junction-case	R_{thJC}	2.50	$^\circ C/W$
热阻结-环境 Thermal Resistance Junction-ambient	R_{thJA}	62.5	$^\circ C/W$

注释(Notes):

- ① 脉冲宽度：以最高结温为限制
Repetitive rating: Pulse width limited by maximum junction temperature
- ② 初始结温= $25^\circ C$, $V_{DD} = 50V$, $L = 16mH$, $R_G = 25\Omega$, $I_{AS} = 8.0A$
Starting $T_j = 25^\circ C$, $V_{DD} = 50V$, $L = 16mH$, $R_G = 25\Omega$, $I_{AS} = 8.0A$
- ③ 脉冲测试：脉冲宽度 $\leq 300\mu s$ ，占空比 $\leq 2\%$
Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$

● 特性曲线

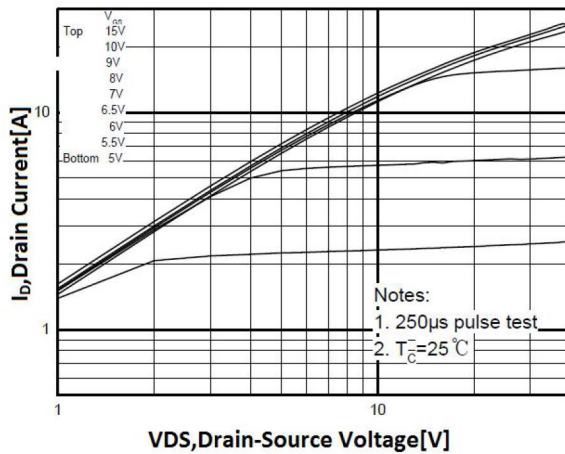


图1 输出特性曲线, $T_c=25^\circ\text{C}$

Fig1 Typical Output Characteristics, $T_c=25^\circ\text{C}$

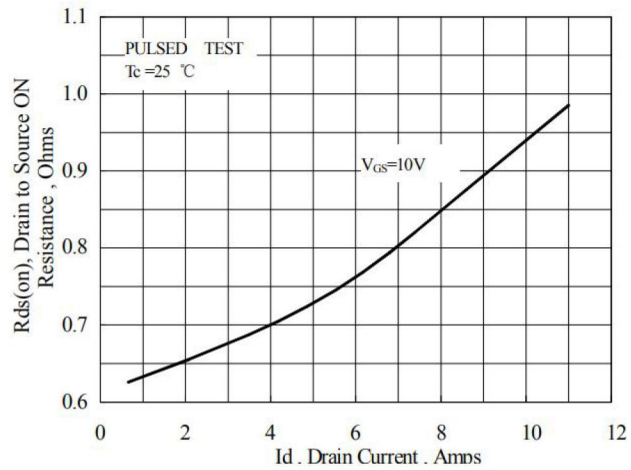


图2 导通电阻与漏极电流和栅极电压曲线

Fig2 On-Resistance Vs. Drain Current and Gate Voltage

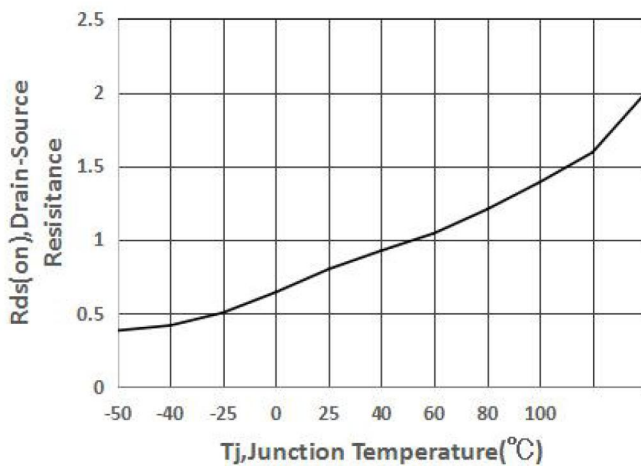


图3 导通电阻与温度曲线

Fig3 Normalized On-Resistance Vs. Temperature

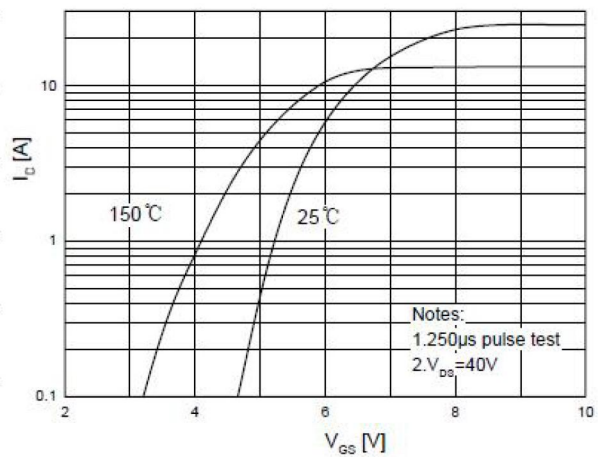


图4 二极管正向电压曲线

Fig4 Typical Source-Drain Diode Forward Voltage

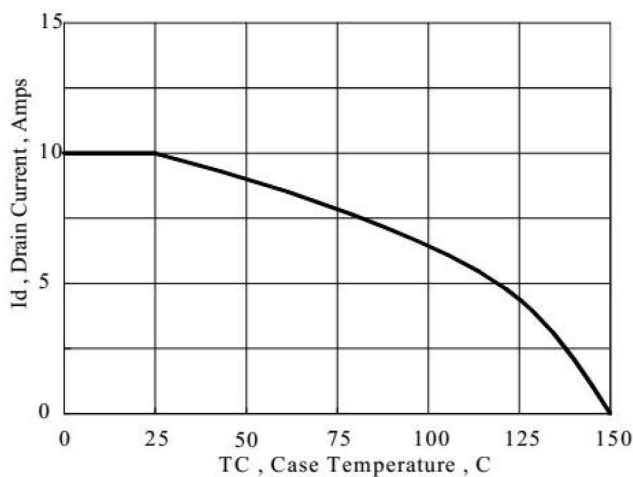


图5 最大漏极电流与壳温曲线

Fig5 Maximum Drain Current Vs. Case Temperature

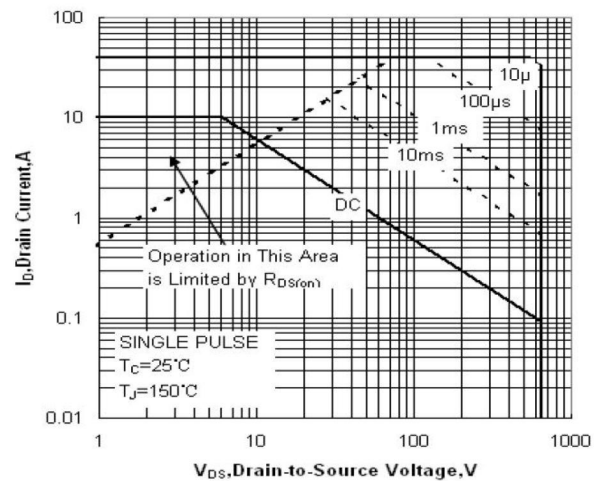


图6 最大安全工作区曲线

Fig6 Maximum Safe Operating Area