

●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

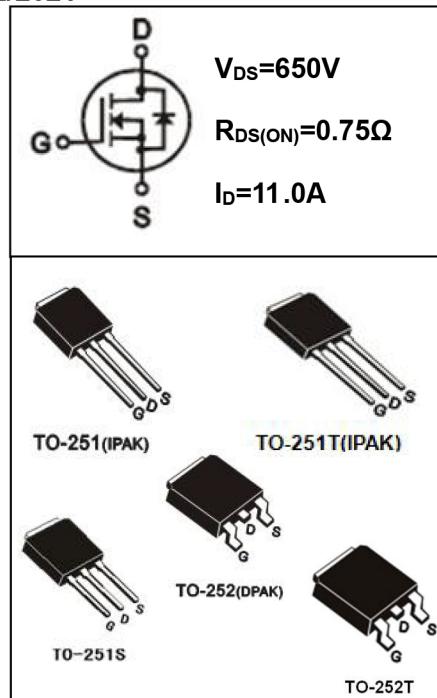
●应用：电子镇流器 电子变压器 开关电源

●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 <sub>DS</sub>	650	V
栅-源电压 gate-source Voltage	V <sub>GS</sub>	±30	V
漏极电流 Continuous Drain Current TC=25°C	I <sub>D</sub>	11	A
漏极电流 Continuous Drain Current TC=100°C	I <sub>D</sub>	6.0	A
最大脉冲电流 Drain Current -Pulsed ①	I <sub>DM</sub>	40	A
耗散功率 Power Dissipation	P <sub>tot</sub>	50	W
最高结温 Junction Temperature	T <sub>J</sub>	150	°C
存储温度 Storage Temperature	T <sub>STG</sub>	-55-150	°C
单脉冲雪崩能量 Single Pulse Avalanche Energy ②	E <sub>AS</sub>	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 <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	650			V
击穿电压温度系数 Breakdown Voltage Temperature Coefficient	Δ BV <sub>DSS</sub> /Δ T <sub>j</sub>	I <sub>D</sub> =250uA, Referenced to 25°C		0.65		V/°C
栅极开启电压 Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250μA	2.0		4.0	V
漏-源漏电流 Drain-source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =650V, V <sub>GS</sub> =0V, T <sub>j</sub> =25°C			1	μA
		V <sub>DS</sub> =480V, V <sub>GS</sub> =0V, T <sub>j</sub> =125°C			10	μA
跨导 Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =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 ( $V_{DS} = 0$ )	$I_{GSS}$	$V_{GS} = \pm 30V$			$\pm 100$	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	$\Omega$
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	$I_s$				11.0	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		uC

## ●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：以最高节温为限制

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

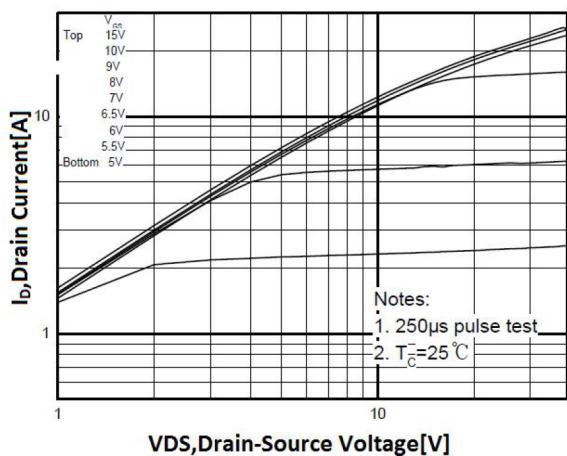


图1 输出特性曲线,  $T_c=25^\circ\text{C}$

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

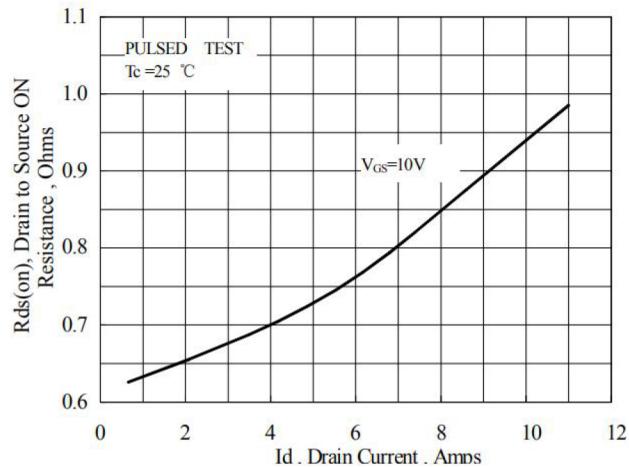


图2 导通电阻与漏极电流和栅极电压曲线

Fig2 On-Resistance Vs.Drain Current and Gate Voltage

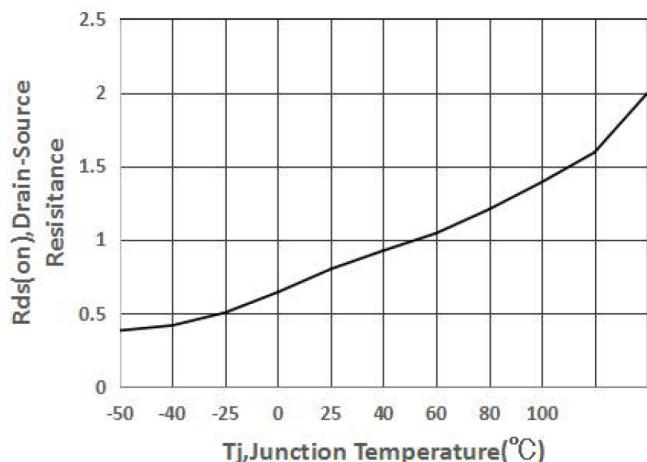


图3 导通电阻与温度曲线

Fig3 Normalized On-Resistance Vs.Temperature

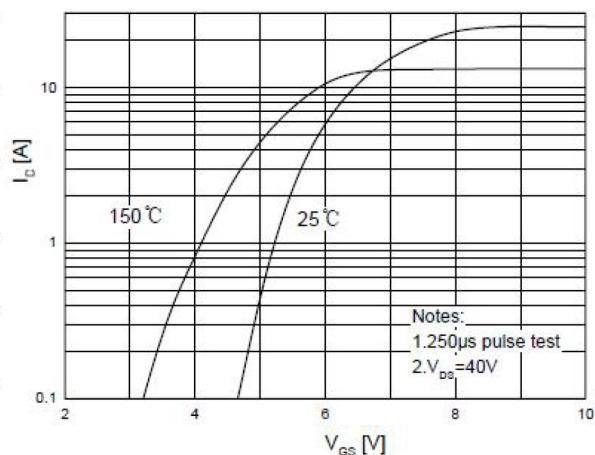


图4 二极管正向电压曲线

Fig4 Typical Source-Drain Diode Forward Voltage

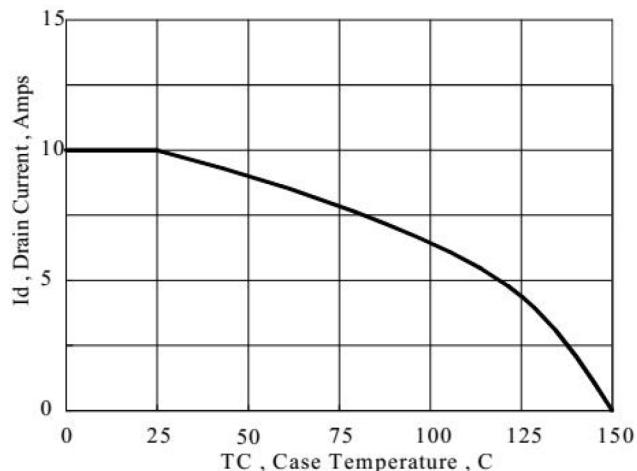


图5 最大漏极电流与壳温曲线

Fig5 Maximum Drain Current Vs.Case Temperature

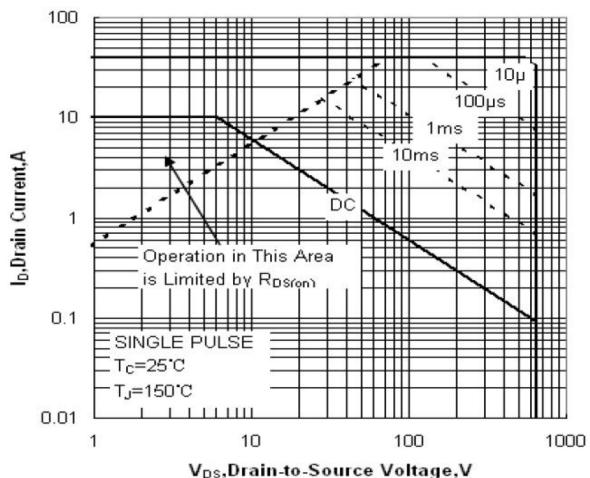


图6 最大安全工作区曲线

Fig6 Maximum Safe Operating Area