

TSSOP-8 30V Dual N Channel Enhancement 共漏双 N 沟道增强型 MOS Field Effect Transistor 场效应管

■ Features 特点

Trench technology 沟槽工艺

Low on-resistance 低导通电阻

$R_{DS(ON)}=12m\Omega(\text{Type})@V_{GS}=10V$

$R_{DS(ON)}=17m\Omega(\text{Type})@V_{GS}=4.5V$

■ Applications 应用

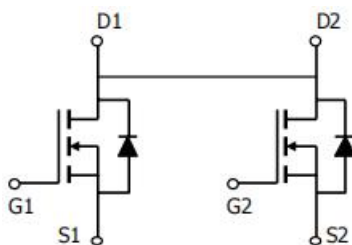
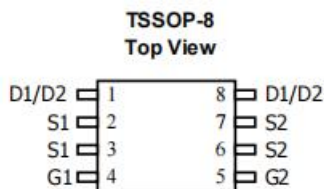
Load Switch 负载开关

PWM Application 脉宽调制应用

DC/DC Conversion 直流/直流升压转换

Power Management in portable/desktop PCs 便携/台式电脑电源管理

■ Internal Schematic Diagram 内部结构



■ 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}	30	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 $T_A = 25^\circ C$)	8	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	32	A
Total Device Dissipation 总耗散功率	$P_D(\text{at } T_A = 25^\circ C)$	1500	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	83	$^\circ C/W$
Junction/Storage Temperature 结温/储存温度	T_J, T_{stg}	-55~150	$^\circ C$

■ 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 =250uA, V _{GS} =0V)	BV _{DSS}	30	—	—	V
Gate Threshold Voltage 栅极开启电压(I _D =250uA, V _{GS} =V _{DS})	V _{GS(th)}	1	1.5	2.4	V
Zero Gate Voltage Drain Current 零栅压漏极电流(V _{GS} =0V, V _{DS} =30V)	I _{DSS}	—	—	1	uA
Gate Body Leakage 栅极漏电流(V _{GS} =±20V, V _{DS} =0V)	I _{GSS}	—	—	±10	μA
Static Drain-Source On-State Resistance 静态漏源导通电阻(I _D =8A, V _{GS} =10V) (I _D =5A, V _{GS} =4.5V)	R _{DS(ON)}	—	12 17	16 23	m Ω
Diode Forward Voltage Drop 内附二极管正向压降(I _{SD} =1A, V _{GS} =0V)	V _{SD}	—	—	1.5	V
Input Capacitance 输入电容 (V _{GS} =0V, V _{DS} =15V, f=1MHz)	C _{ISS}	—	1130	—	pF
Common Source Output Capacitance 共源输出电容(V _{GS} =0V, V _{DS} =15V, f=1MHz)	C _{OSS}	—	170	—	pF
Reverse Transfer Capacitance 反馈电容(V _{GS} =0V, V _{DS} =15V, f=1MHz)	C _{RSS}	—	125	—	pF
Total Gate Charge 栅极电荷密度 (V _{DS} =15V, I _D =8A, V _{GS} =4.5V)	Q _g	—	15	—	nC
Gate Source Charge 栅源电荷密度 (V _{DS} =15V, I _D =8A, V _{GS} =4.5V)	Q _{gs}	—	1.8	—	nC
Gate Drain Charge 栅漏电荷密度 (V _{DS} =15V, I _D =8A, V _{GS} =4.5V)	Q _{gd}	—	5.5	—	nC
Turn-ON Delay Time 开启延迟时间 (V _{DS} =15V I _D =6A, R _{GEN} =3 Ω, V _{GS} =4.5V)	t _{d(on)}	—	5.8	—	ns
Turn-ON Rise Time 开启上升时间 (V _{DS} =15V I _D =6A, R _{GEN} =3 Ω, V _{GS} =4.5V)	t _r	—	5	—	ns
Turn-OFF Delay Time 关断延迟时间 (V _{DS} =15V I _D =6A, R _{GEN} =3 Ω, V _{GS} =4.5V)	t _{d(off)}	—	36	—	ns
Turn-OFF Fall Time 关断下降时间 (V _{DS} =15V I _D =6A, R _{GEN} =3 Ω, V _{GS} =4.5V)	t _f	—	8	—	ns

■ Typical Characteristic Curve 典型特性曲线

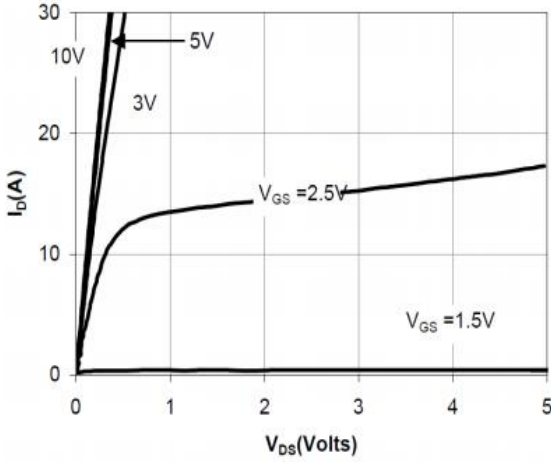


Figure 1: Output Characteristics

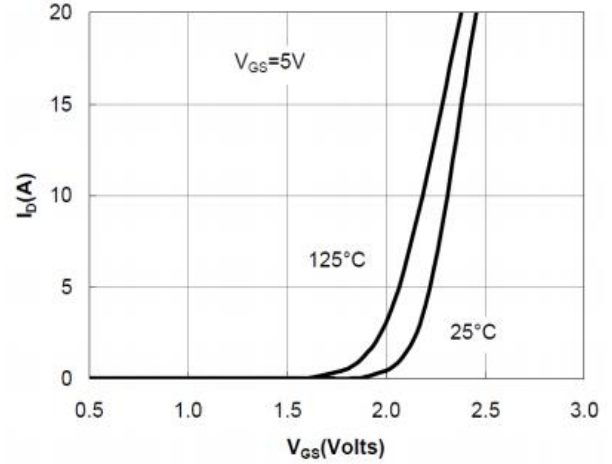


Figure 2: Transfer Characteristics

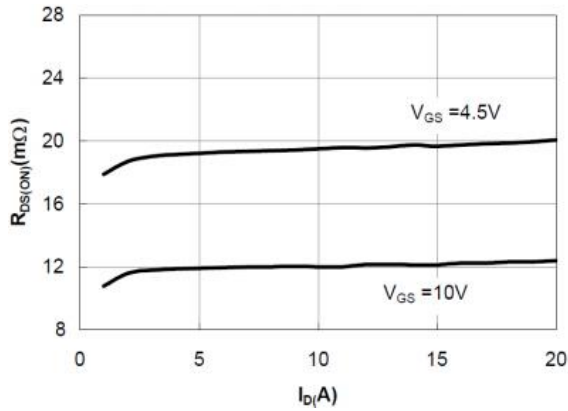


Figure 3: On-Resistance vs. Drain Current

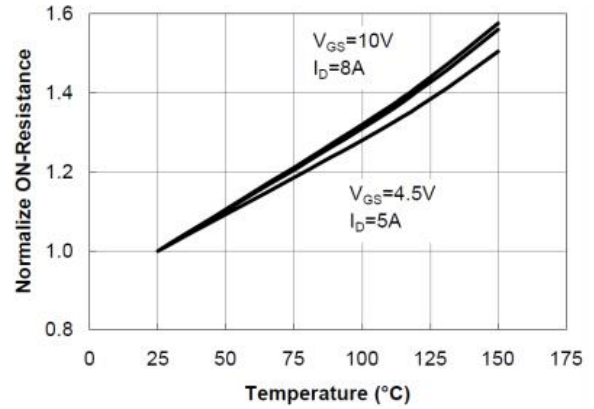


Figure 4: On-Resistance vs. Temperature

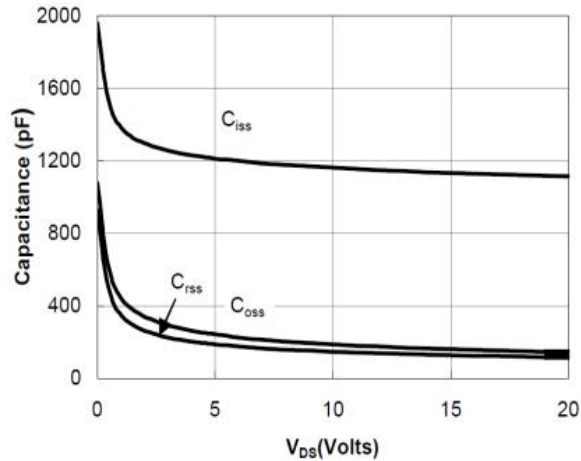


Figure 5: Capacitance Characteristics

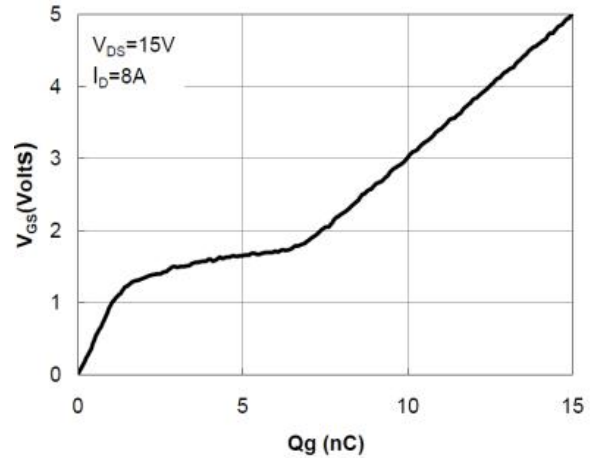


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线

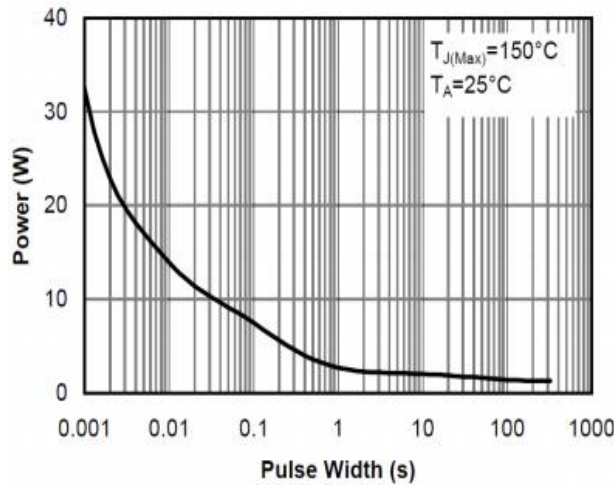


Figure 7: Power Derating

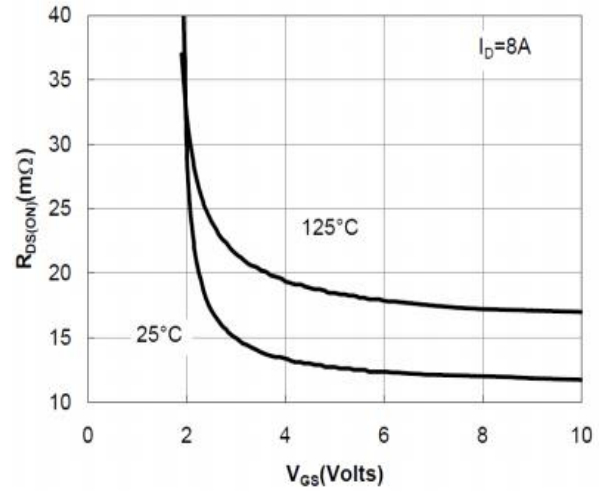


Figure 8: On-Resistance vs. Threshold Voltage

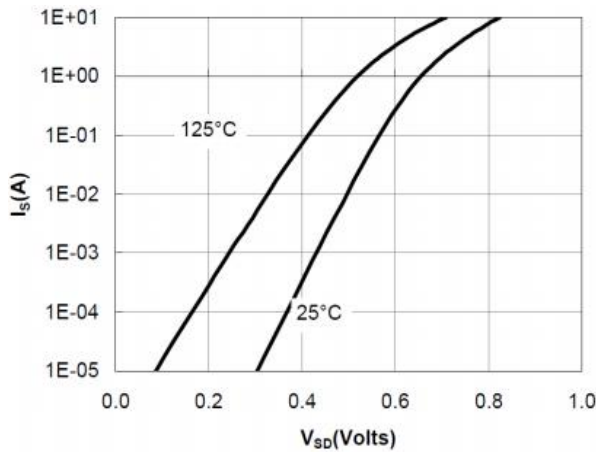


Figure 9: Diode Characteristics

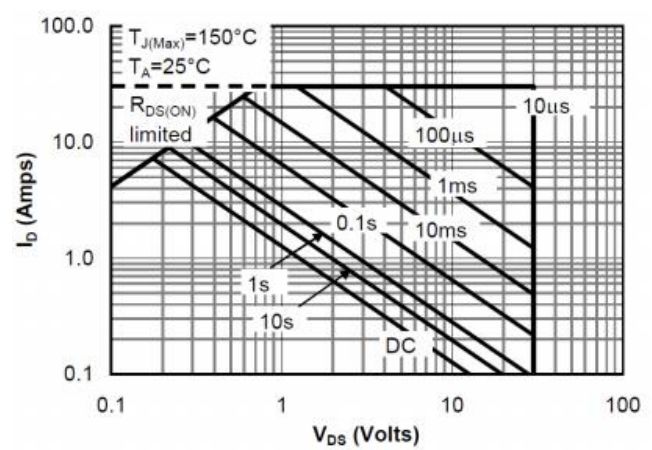


Figure 10: Safe Operating Area

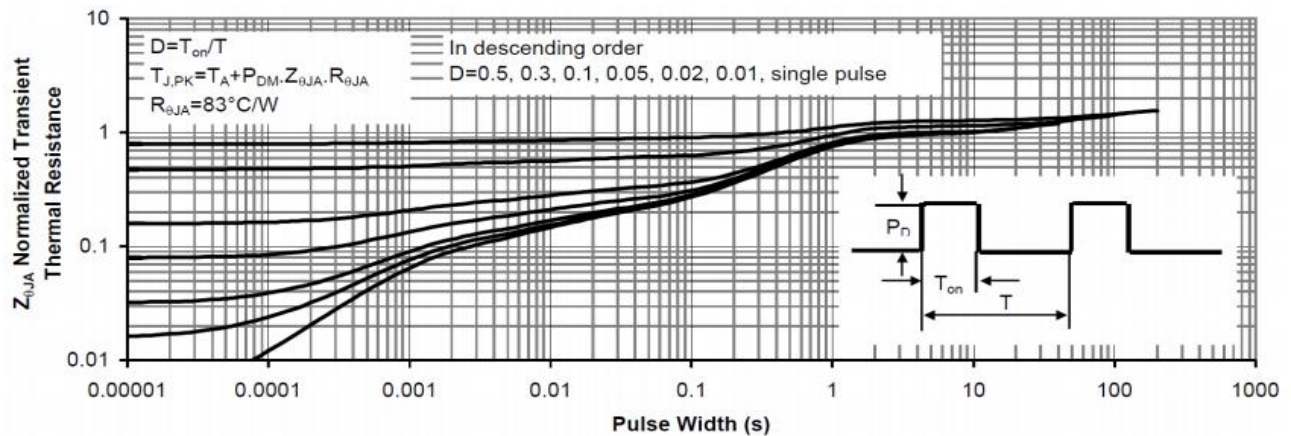
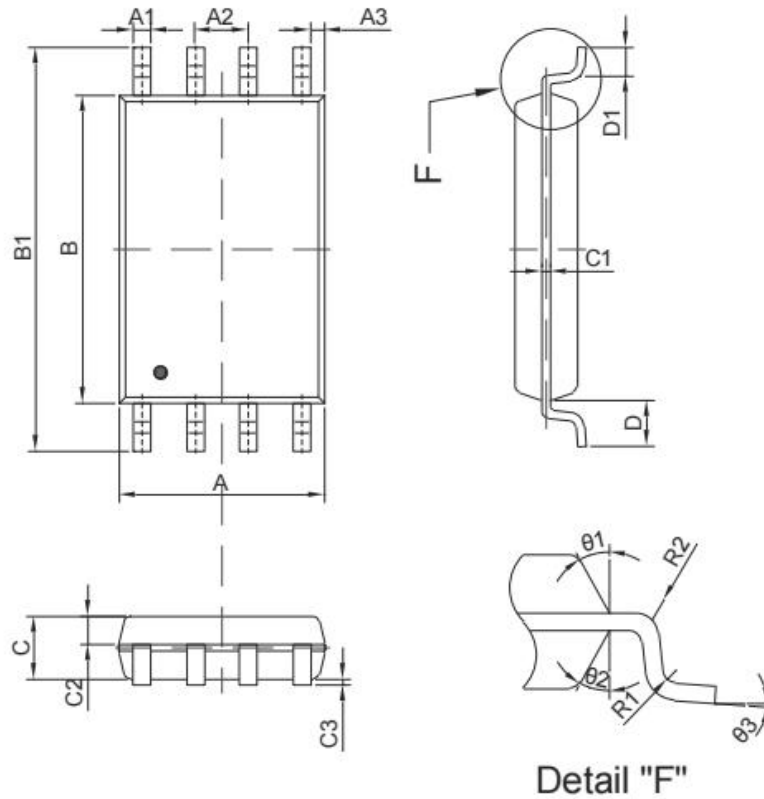


Figure 11: Transient Thermal Response Curve

■ Dimension 外形封装尺寸



Symbol	Millimeters		Symbol	Millimeters	
	Min	Max		Min	Max
A	2.90	3.10	C3	0.05	0.15
A1	0.20	0.30	D	1.00 REF	
A2	0.65 TYP		D1	0.50	0.70
A3	0.36	0.46	R1	0.15 TYP	
B	4.30	4.50	R2	0.15 TYP	
B1	6.30	6.50	θ1	12° TYP	
C	0.95	1.05	θ2	12° TYP	
C1	0.127 TYP		θ3	0° ~ 7°	
C2	0.39	0.49			