

TO-252 P Channel Enhancement 沟道增强型 MOS Field Effect Transistor 场效应管

■Features 特点

Low on-resistance 低导通电阻

$R_{DS(ON)}=8.3m\Omega(\text{Type})@V_{GS}=-10V$

$R_{DS(ON)}=13m\Omega(\text{Type})@V_{GS}=-4.5V$

■Applications 应用

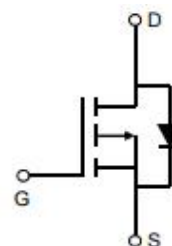
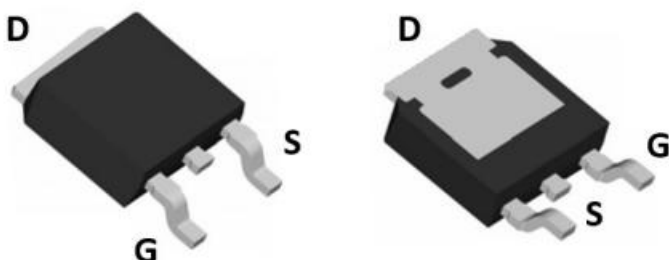
Load switch 负载开关

DC/DC Converter 升压转换

Power Management 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 $T_A = 25^\circ\text{C}$ at $T_C = 25^\circ\text{C}$)	-25 -60	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	120	A
Total Device Dissipation 总耗散功率	$P_D(\text{at } T_A = 25^\circ\text{C})$	2.5	W
Total Device Dissipation 总耗散功率	$P_D(\text{at } T_C = 25^\circ\text{C})$	90	W
Thermal Resistance Junction-Am/Case 热阻	$R_{\theta JA}/R_{\theta JC}$	60/1.38	$^\circ\text{C}/\text{W}$
Avalanche Energy Single Pulse 雪崩能量	E_{AS}	150	mJ
Junction/Storage Temperature 结温/储存温度	T_J, T_{stg}	-55~150	$^\circ\text{C}$

■ Electrical Characteristics 电特性

 (T_A=25°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 = -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	-1.8	-2.5	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}	—	—	±100	nA
Static Drain-Source On-State Resistance 静态漏源导通电阻(I _D = -25A, V _{GS} = -10V) (I _D = -15A, V _{GS} = -4.5V)	R _{DS(ON)}	—	8.3 13	13 15	mΩ
Diode Forward Voltage Drop 内附二极管正向压降(I _{SD} = -1A, V _{GS} =0V)	V _{SD}	—	—	-1.3	V
Input Capacitance 输入电容 (V _{GS} =0V, V _{DS} = -15V, f=1MHz)	C _{ISS}	—	3186	—	pF
Common Source Output Capacitance 共源输出电容(V _{GS} =0V, V _{DS} = -15V, f=1MHz)	C _{OSS}	—	640	—	pF
Reverse Transfer Capacitance 反馈电容 (V _{GS} =0V, V _{DS} = -15V, f=1MHz)	C _{RSS}	—	600	—	pF
Total Gate Charge 栅极电荷密度 (V _{DS} = -15V, I _D = -25A, V _{GS} = -10V)	Q _g	—	53	—	nC
Gate Source Charge 栅源电荷密度 (V _{DS} = -15V, I _D = -25A, V _{GS} = -10V)	Q _{gs}	—	23	—	nC
Gate Drain Charge 栅漏电荷密度 (V _{DS} = -15V, I _D = -25A, V _{GS} = -10V)	Q _{gd}	—	13	—	nC
Turn-ON Delay Time 开启延迟时间 (V _{DS} = -15V I _D = -25A, R _{GEN} =3Ω, V _{GS} = -10V)	t _{d(on)}	—	19	—	ns
Turn-ON Rise Time 开启上升时间 (V _{DS} = -15V I _D = -25A, R _{GEN} =3Ω, V _{GS} = -10V)	t _r	—	15	—	ns
Turn-OFF Delay Time 关断延迟时间 (V _{DS} = -15V I _D = -25A, R _{GEN} =3Ω, V _{GS} = -10V)	t _{d(off)}	—	52	—	ns
Turn-OFF Fall Time 关断下降时间 (V _{DS} = -15V I _D = -25A, R _{GEN} =3Ω, V _{GS} = -10V)	t _f	—	17	—	ns

■ Typical Characteristic Curve 典型特性曲线

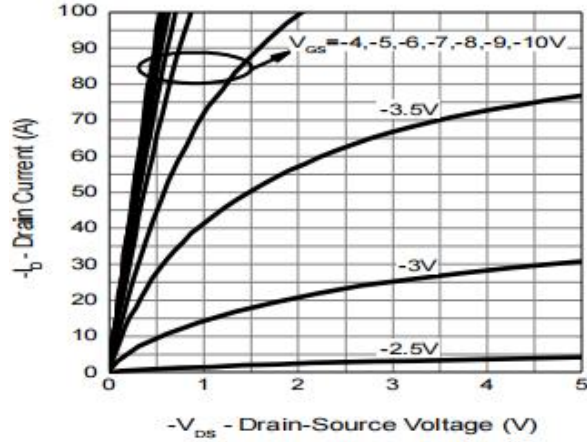


Figure 1: Output Characteristics

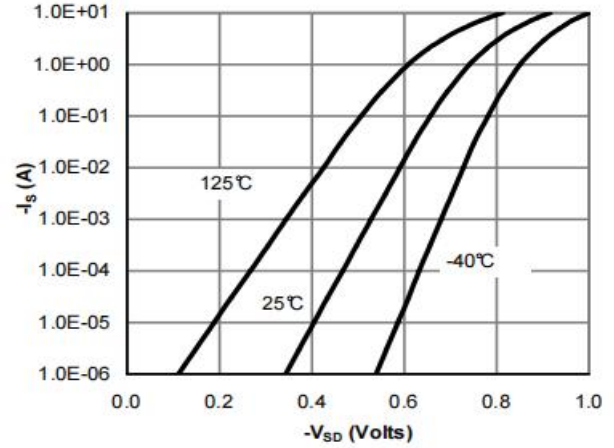


Figure 2: Diode Characteristics

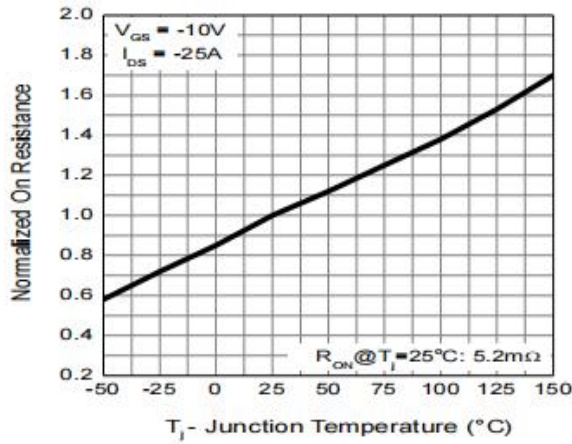


Figure 3: On-Resistance vs. T_J

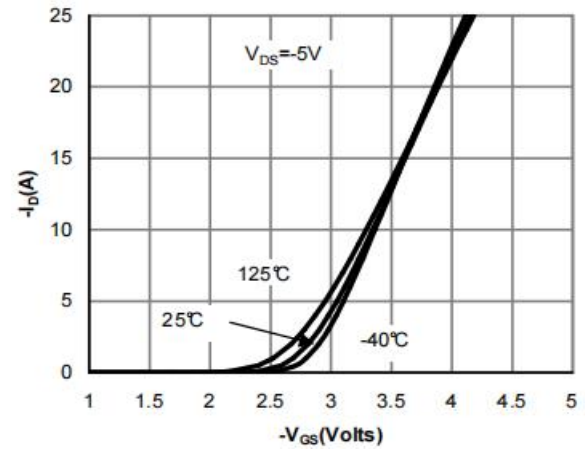


Figure 4: Transfer Characteristics

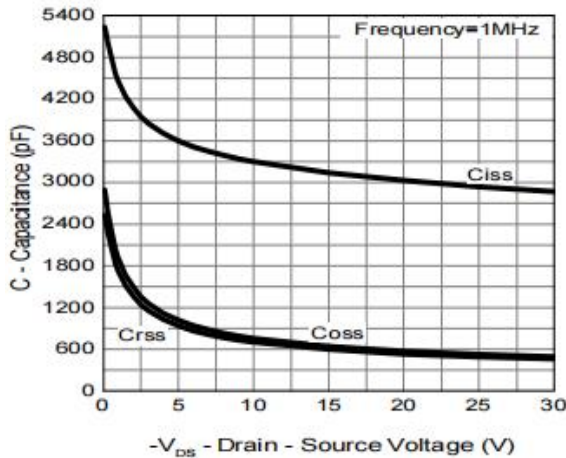


Figure 5: Capacitance Characteristics

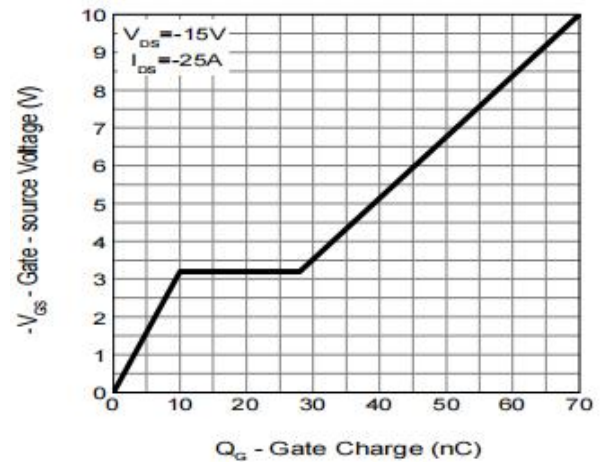


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线

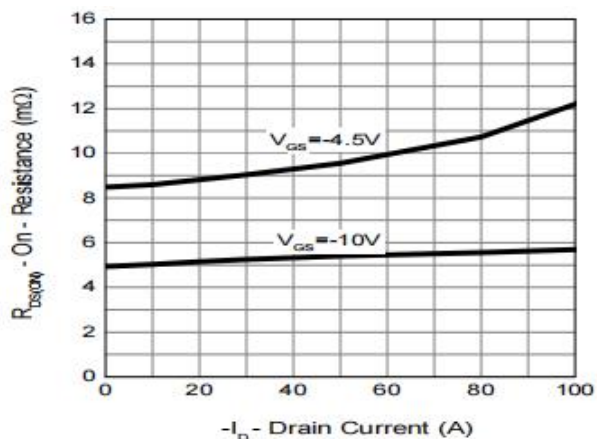


Figure 7: On-Resistance vs. Drain Current

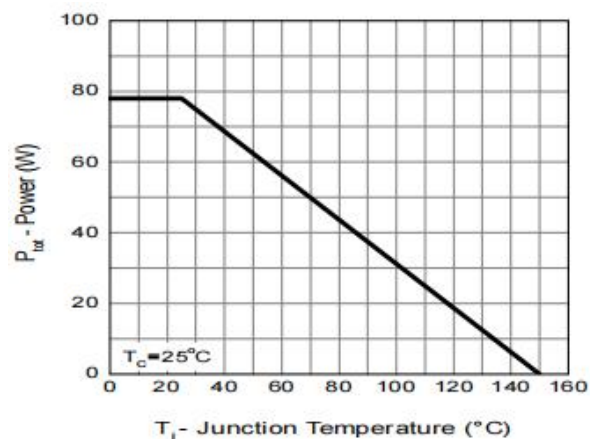


Figure 8: Power Rating Characteristics

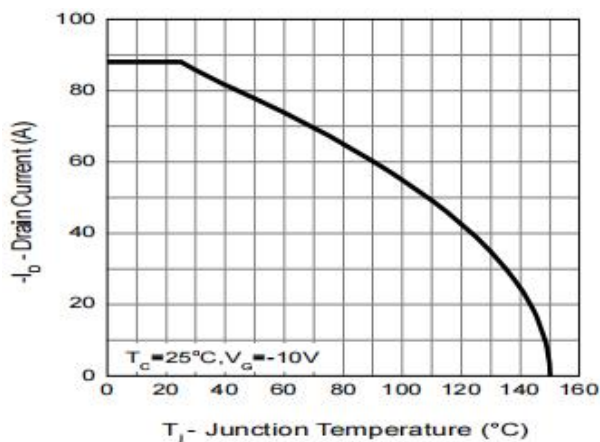


Figure 9: Drain Current Characteristics

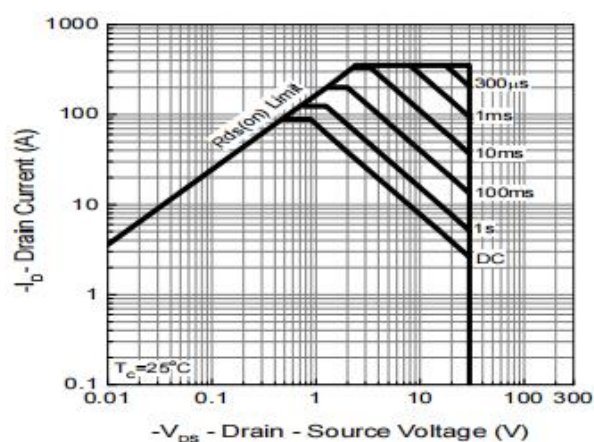


Figure 10: Safe Operating Area

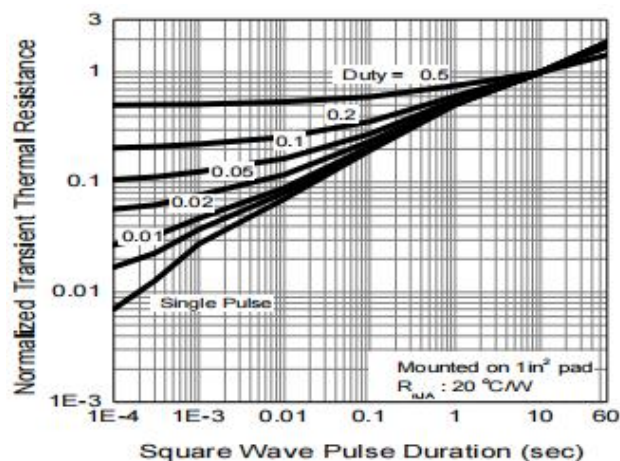
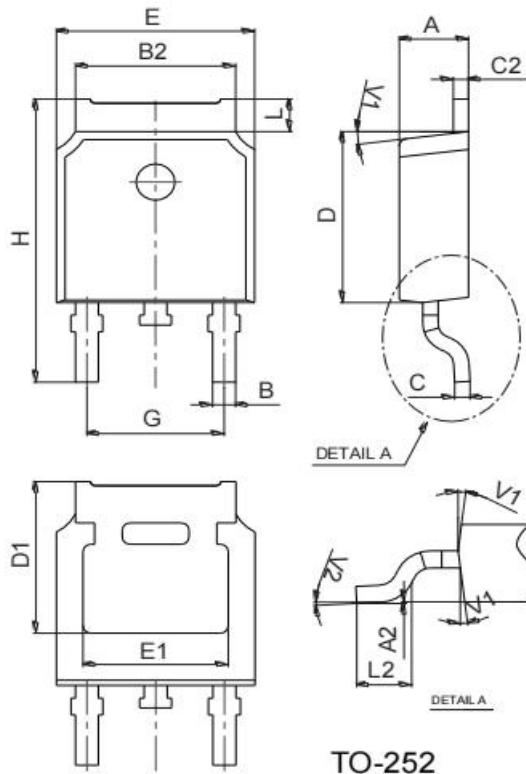


Figure 11: Transient Thermal Response Curve

■ Package Dimension 外形封装尺寸



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

■ Reel Dimension 编带卷盘尺寸

