

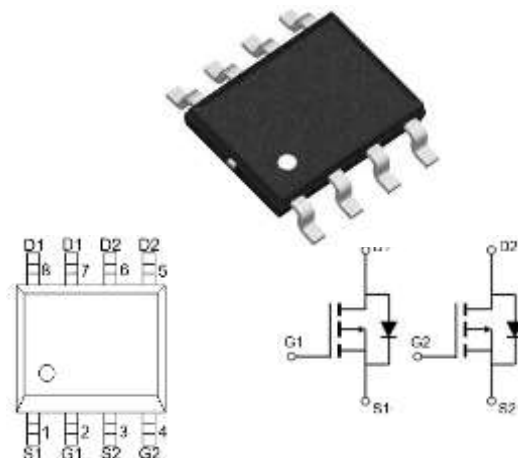
-30V_{DS}/±20V_{GS} P-Channel Enhancement Mode MOSFET

Features

- V_{DS}=-30V, I_D=-9A
- R_{DS(ON)}=15mΩ (TYP.) V_{GS}=-10V
- Reliable and Rugged
- Avalanche Rated
- Low On-Resistance

Applications

- Load Switch
- Power management in portable/desktop PCs
- DC/DC conversion

SOP8


Ordering Information

Device	package	Device Marking	Package Qty.
HSM4805	SOP-8	**	3000/PCS

Absolute Maximum Ratings (T_C=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V _{GS} =0V)	V _{DS}	-30	V
Gate-Source Voltage (V _{GS} =0V, static)	V _{GS}	±20	V
Continuous Drain Current (T _C =25°C)	I _D	-9	A
Continuous Drain Current (T _C =100°C)		-7	A
Pulsed Drain Current	I _{DM}	-42	A
Single Pulsed Avalanche Energy	E _{AS}	-	mJ
Maximum Power Dissipation (T _C =25°C)	P _D	3	W
Operating, Storage Temperature Range	T _J , T _{STG}	-55~150	°C

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-30	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V	-	-	-1	μA
Gate -Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =-250μA	-1.0	-1.5	-2.2	V
Drain-Source On-stage Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-1A	-	11	15	mΩ
		V _{GS} =-4.5V, I _D =-1A	-	12	18	

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance, Junction-to-Case	R _{θJC}	-	-	-	°C/ W
Thermal Resistance, Junction-to-Ambient	R _{θJA}	-	-	-	°C/ W

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	$V_{DS}=-15V$ $V_{GS}=0V$ $f=1MHz$	-	2800	-	pF
Output capacitance	C_{oss}		-	350	-	
Reverse transfer capacitance	C_{rss}		-	300	-	
Gate Resistance	R_g	$f=1MHz$	-	-	-	Ω
Total Gate Charge	Q_g	$V_{DS}=-15V$ $V_{GS}=-10V$ $I_D=-8A$	-	30	-	nC
Gate Source Charge	Q_{gs}		-	5.5	-	
Gate Drain Charge	Q_{gd}		-	7.5	-	
Turn-on delay Time	$t_{d(on)}$	$V_{GS}=-10V$ $V_{DS}=-15V$ $R_L=1.7\Omega$ $R_G=3\Omega$	-	13	-	ns
Rise time	t_r		-	20	-	
Turn-off delay Time	$t_{d(off)}$		-	90	-	
Fall time	t_f		-	65	-	

Reverse Diode Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Body Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=-1A$	-	-0.7	-1	V
Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_{SD}=-8A$ $dI/dt=100A/\mu s$	-	-	-	ns
Reverse Recovery Charge	Q_{rr}		-	-	-	nC

Electrical Characteristics Diagrames

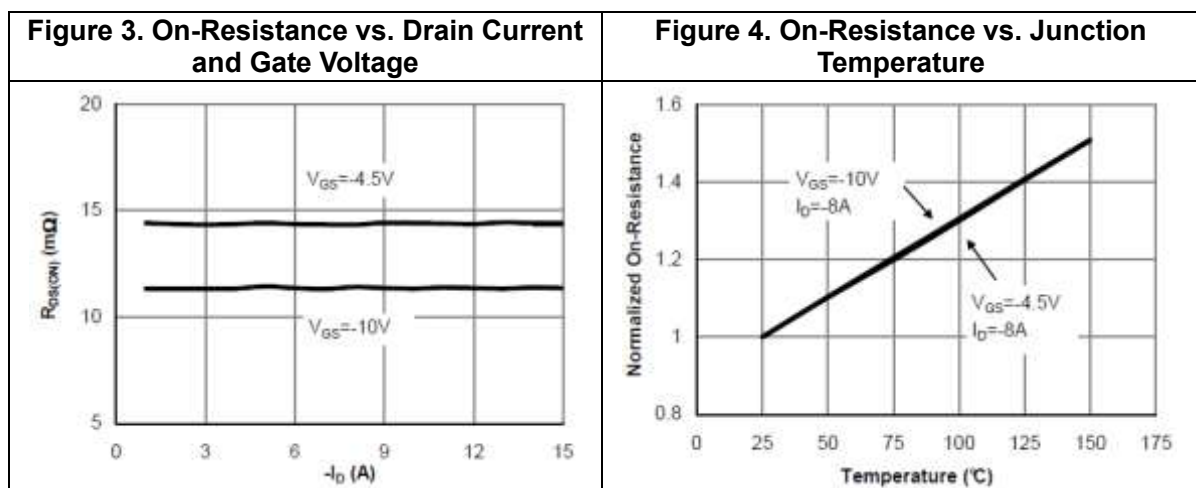
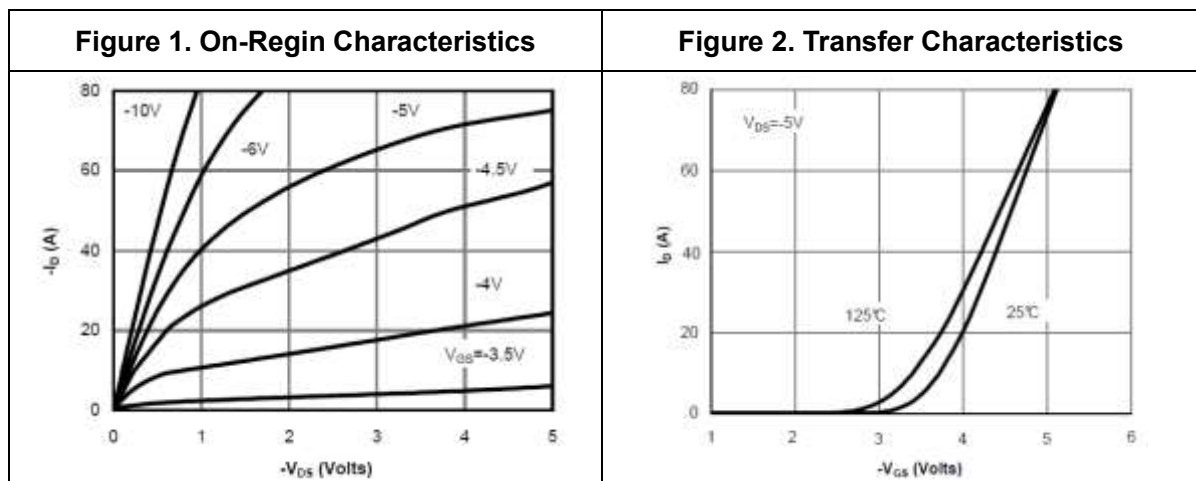


Figure 5. On-Resistance vs. Gate-Source Voltage

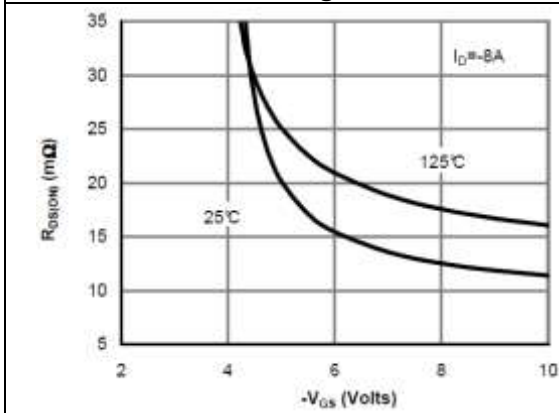


Figure 6. Body-Diode Characteristics

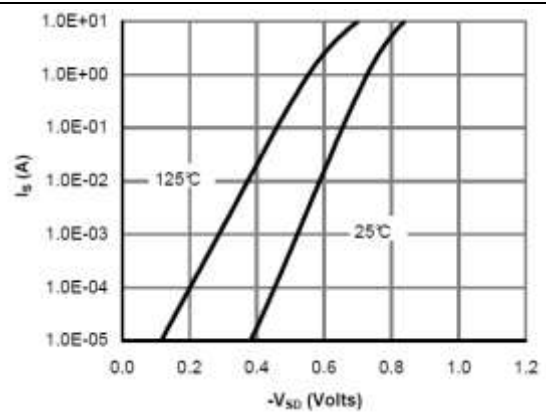


Figure 7. Gate-Charge Characteristics

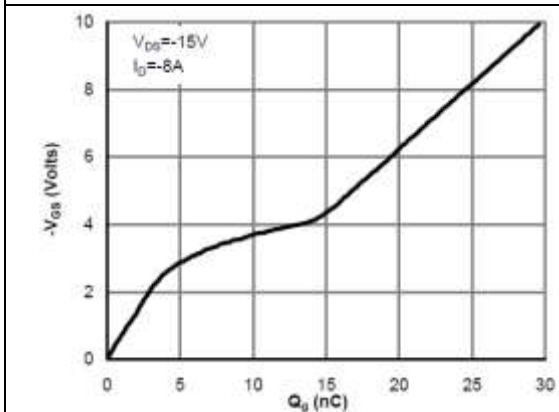


Figure 8. Capacitance Characteristics

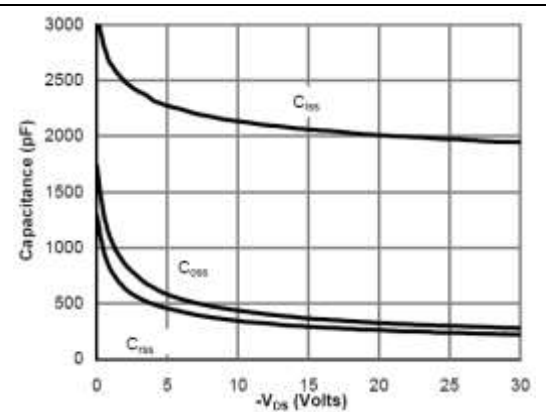


Figure 9. Maximum Forward Biased Safe Operating Area

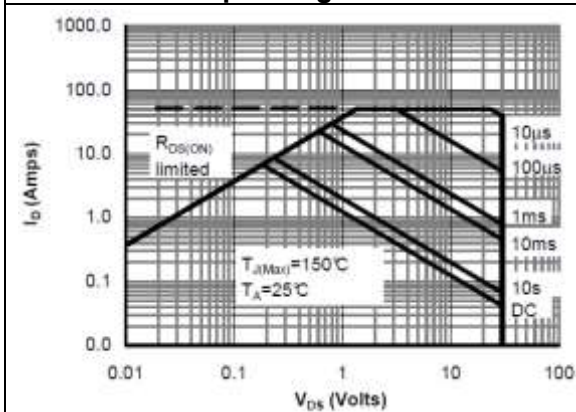


Figure 10. Single Pulse Power Rating Junction-to-Ambient

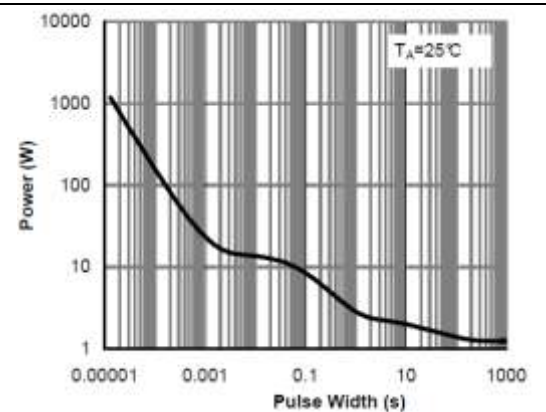
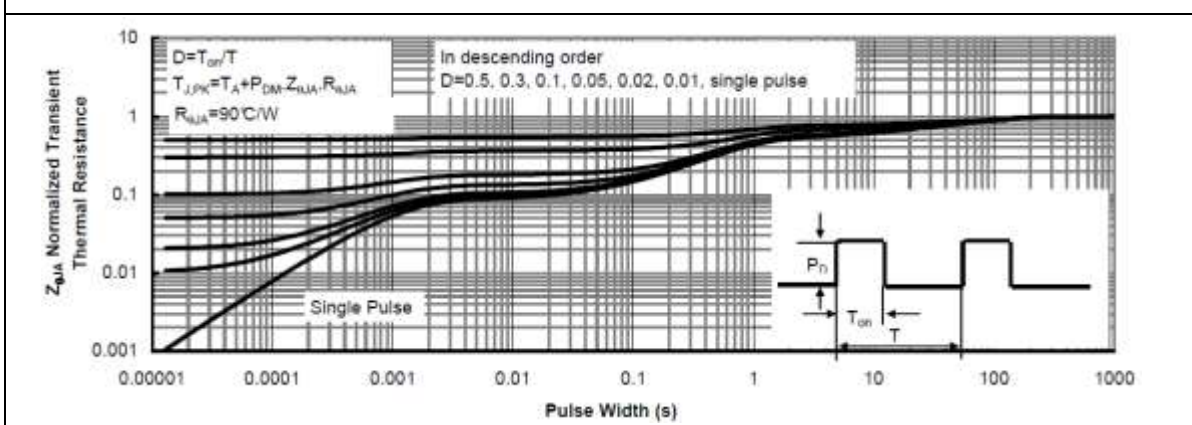
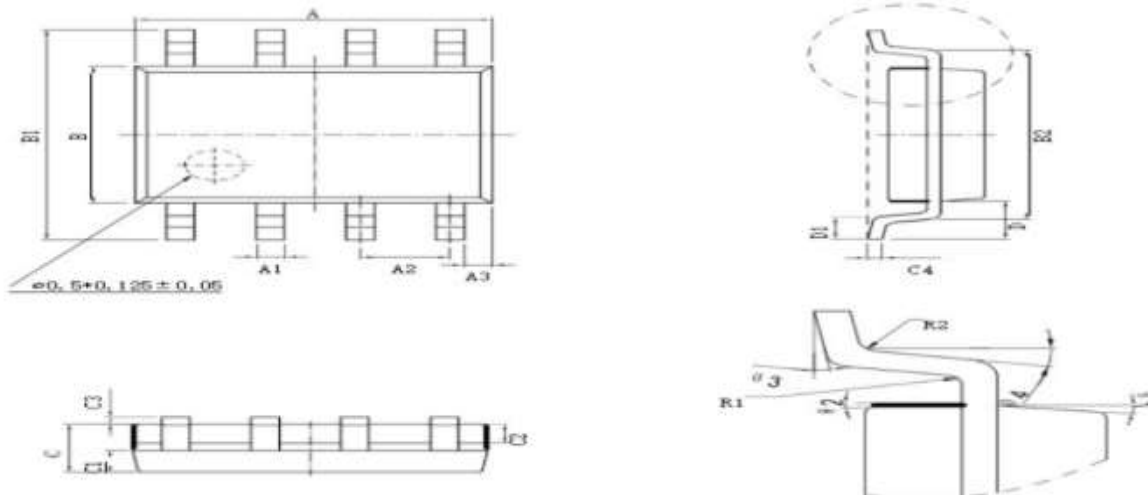


Figure 11. Normalized Maximum Transient Thermal Impedance



Physical Dimensions

SOP8



符号	尺寸 (mm)		符号	尺寸 (mm)	
	最小值	最大值		最小值	最大值
A	4.80	5.00	C3	0.05	0.20
A1	0.356	0.456	C4	0.203	0.233
A2	1.27 TYP		D	1.05 TYP	
A3	0.345 TYP		D1	0.40	0.80
B	3.80	4.00	R1	0.20 TYP	
B1	5.80	6.20	R2	0.20 TYP	
B2	5.00 TYP		theta1	17° TYP4	
C	1.30	1.60	theta2	13° TYP4	
C1	0.55	0.65	theta3	0° ~ 8°	
C2	0.55	0.65	theta4	4° ~ 12°	

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