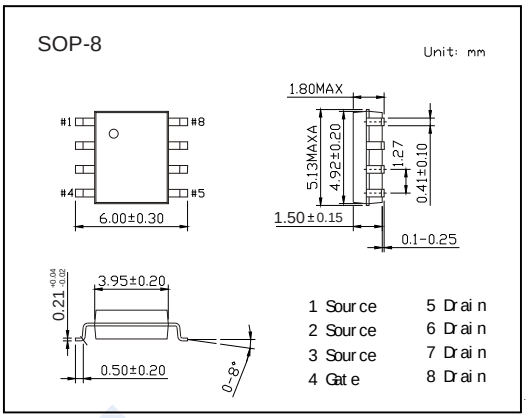
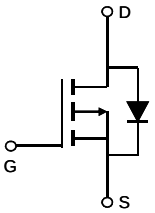
P-Channel MOSFET

AO4407



■ Features

- $V_{DS\ (V)}$ =-30V
- I_D =-12 A (V_{GS} =-20V)
- $R_{DS(ON)}$ < 13mΩ (V_{GS} =-20V)
- $R_{DS(ON)}$ < 14mΩ (V_{GS} =-10V)
- $R_{DS(ON)}$ < 30mΩ (V_{GS} =-5V)



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±25	
Continuous Drain Current	TA=25°C	I_D	-12	A
	TA=70°C		-10	
Pulsed Drain Current		I_{DM}	-60	
Avalanche Current		I_{AS},I_{AR}	26	
Power Dissipation	TA=25°C	P_D	3.1	W
	TA=70°C		2	
Avalanche energy	L=0.3mH	E_{AS},E_{AR}	101	mJ
Thermal Resistance.Junction- to-Ambient	t ≤ 10s	R_{thJA}	40	℃/W
	Steady-State		75	
Thermal Resistance.Junction- to-Case	Steady-State	R_{thJC}	24	
Junction Temperature		T_J	150	℃
Junction Storage Temperature Range		T_{stg}	-55 to 150	

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=-250μA, V_{GS}=0V	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-30V, V_{GS}=0V			-1	μA
		V_{DS}=-30V, V_{GS}=0V, T_J=55℃			-5	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±25V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	-1.7		-2.8	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-20V, I_D=-12A			13	mΩ
		V_{GS}=-10V, I_D=-12A			14	
		V_{GS}=-10V, I_D=-12A T_J=125℃			19	
		V_{GS}=-5V, I_D=-7A			30	
On state drain current	$I_{D(ON)}$	V_{GS}=-10V, V_{DS}=-5V	-60			A
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-10.5A		27		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V, f=1MHz		2060	2600	pF
Output Capacitance	C_{oss}			370		
Reverse Transfer Capacitance	C_{rss}			295		
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz	1.2	2.4	3.6	Ω
Total Gate Charge	Q_g	V_{GS}=-10V, V_{DS}=-15V, I_D=-12A	24	30	36	nC
Gate Source Charge	Q_{gs}			4.6		
Gate Drain Charge	Q_{gd}			10		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-15V, R_L=1.25Ω, R_G=3Ω		11		ns
Turn-On Rise Time	t_r			9.4		
Turn-Off DelayTime	$t_{d(off)}$			24		
Turn-Off Fall Time	t_f			12		
Body Diode Reverse Recovery Time	t_{rr}	I_F=-12A, di/dt=100A/μs		30	40	
Body Diode Reverse Recovery Charge	Q_{rr}			22		nC
Maximum Body-Diode Continuous Current	I_S				-4	A
Diode Forward Voltage	V_{SD}	I_S=-1A,V_{GS}=0V			-1	V

■ Marking

Marking	4407 KC****

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■ Typical Characterisitics

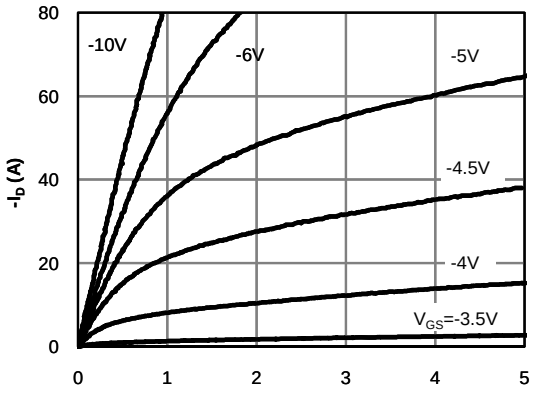

Fig 1: On-Region Characteristics

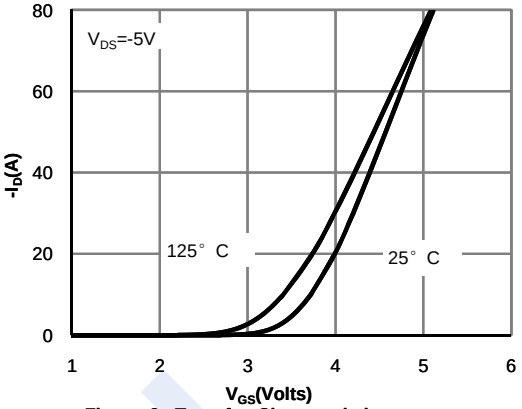

Figure 2: Transfer Characteristics

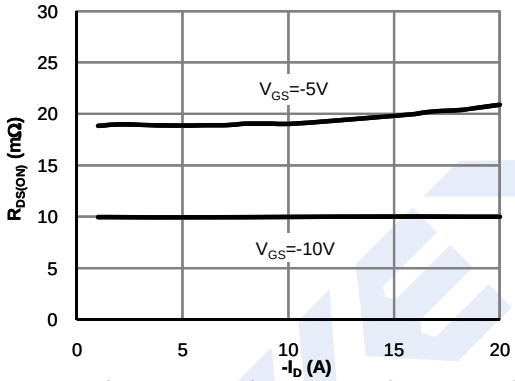

Figure 3: On-Resistance vs. Drain Current and Gate Voltage

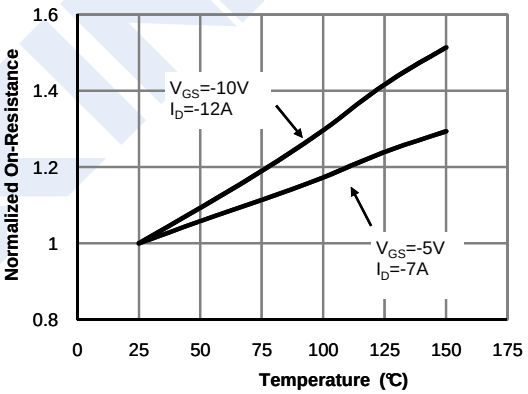

Figure 4: On-Resistance vs. Junction Temperature

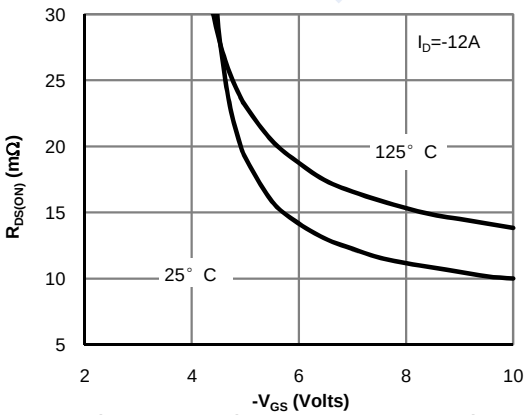

Figure 5: On-Resistance vs. Gate-Source Voltage

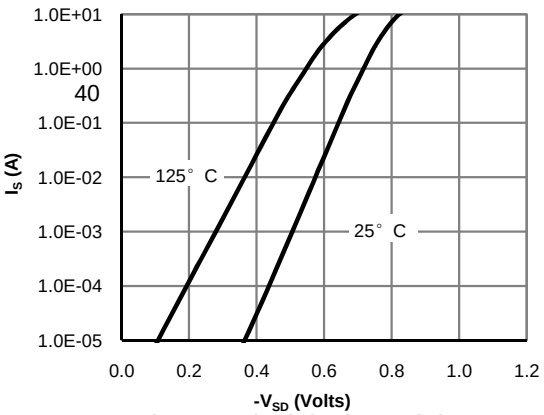

Figure 6: Body-Diode Characteristics

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■ Typical Characterisitics

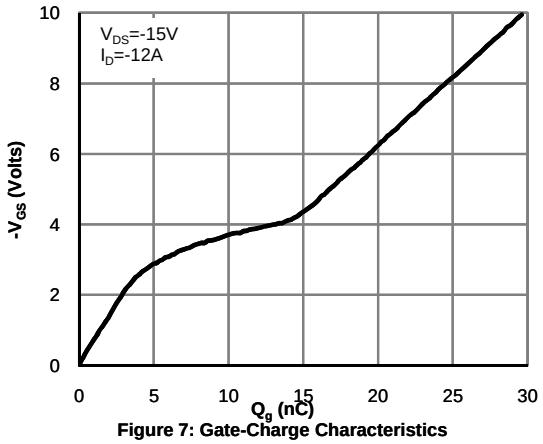

Figure 7: Gate-Charge Characteristics

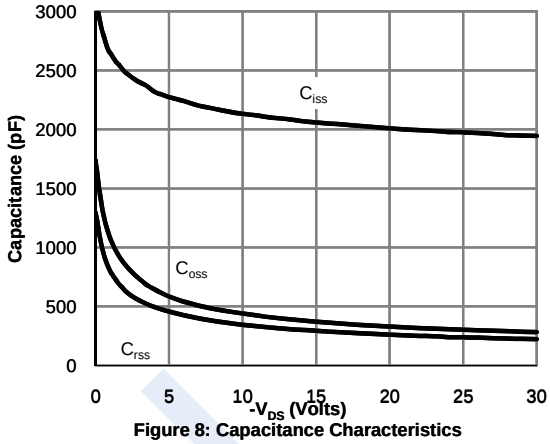

Figure 8: Capacitance Characteristics

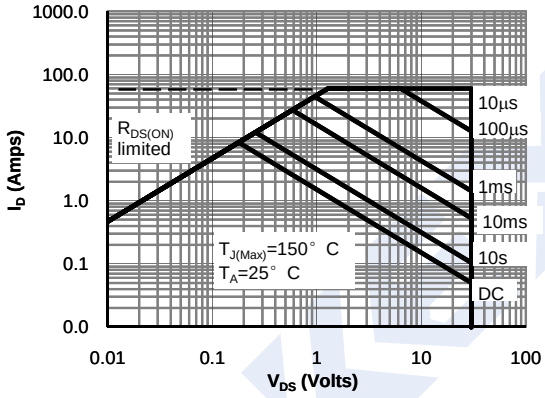

Figure 9:Maximum Forward Biased Safe Operating Area

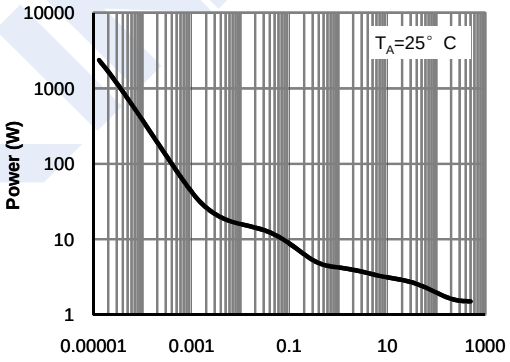

Figure 10: Single Pulse Power Rating Junction-to-Ambient

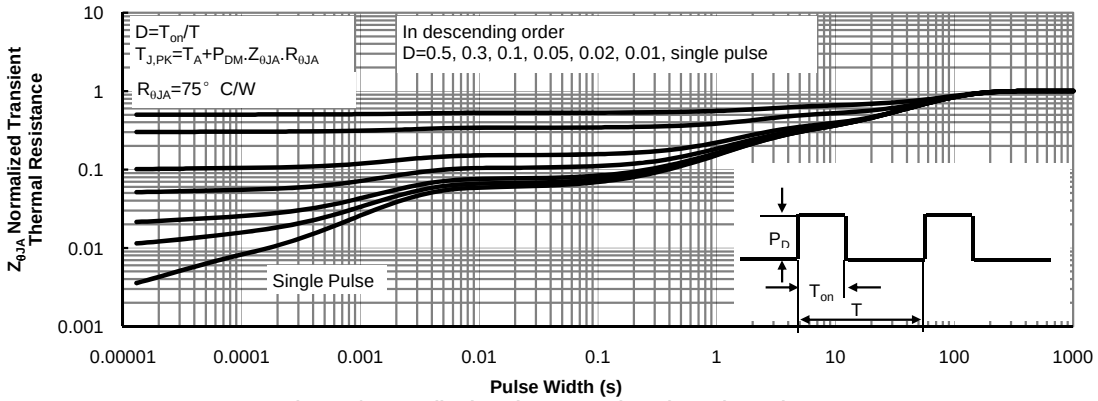

Figure 11: Normalized Maximum Transient Thermal Impedance