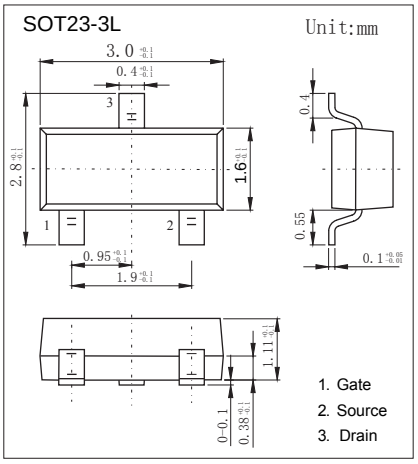
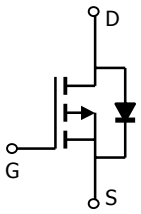
P-CHANNEL MOSFET FOR SWITCHING



■ Features

- $V_{DS\ (V)}$ = -30V
- I_D = -4.1 A
- $R_{DS(ON)}$ < 52mΩ (V_{GS} = -10V)
- $R_{DS(ON)}$ < 75mΩ (V_{GS} = -4.5V)



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	
Continuous Drain Current Ta = 25℃	I_D	-4.1	A
Ta = 70℃		-3.5	
Pulsed Drain Current	I_{DM}	-20	
Power Dissipation Ta = 25℃	P_D	1.4	W
Ta = 70℃		1	
Thermal Resistance.Junction- to-Ambient t ≤10s	R_{thJA}	90	℃/W
Steady State		125	
Thermal Resistance.Junction- to-Lead	R_{thJL}	60	
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

■ Marking Information:

Marking Code:	3407AY *
*=Date Code/Lot No. Marking Code	

■ 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}=-24V, V_{GS}=0V			-1	μA
		V_{DS}=-24V, V_{GS}=0V, T_J=55℃			-5	
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA	-1	-1.8	-3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-4.1A		50	52	mΩ
		V_{GS}=-10V, I_D=-4.A T_J=125℃		52	75	
On state drain current	$I_{D(ON)}$	V_{GS}=-4.5V, V_{DS}=-5V	-10			A
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-4A	5.5	8.2		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V, f=1MHz		700		pF
Output Capacitance	C_{oss}			120		
Reverse Transfer Capacitance	C_{rss}			75		
Gate resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1MHz		10		Ω
Total Gate Charge	Q_g	V_{GS}=-4.5V, V_{DS}=-15V, I_D=-4A		14.3		nC
Gate Source Charge	Q_{gs}			7		
Gate Drain Charge	Q_{gd}			3.1		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-15V, R_L=3.6Ω,R_{GEN}=3Ω		8.6		ns
Turn-On Rise Time	t_r			5		
Turn-Off DelayTime	$t_{d(off)}$			28.2		
Turn-Off Fall Time	t_f			13.5		
Body Diode Reverse Recovery Time	t_{rr}	I_F=-4A, dI/dt=100A/μs		27		
Body Diode Reverse Recovery Charge	Q_{rr}			15		nC
Maximum Body-Diode Continuous Current	I_S				-2.2	A
Diode Forward Voltage	V_{SD}	I_S=-1A,V_{GS}=0V		-0.77	-1	V

■ Typical Characterisitics

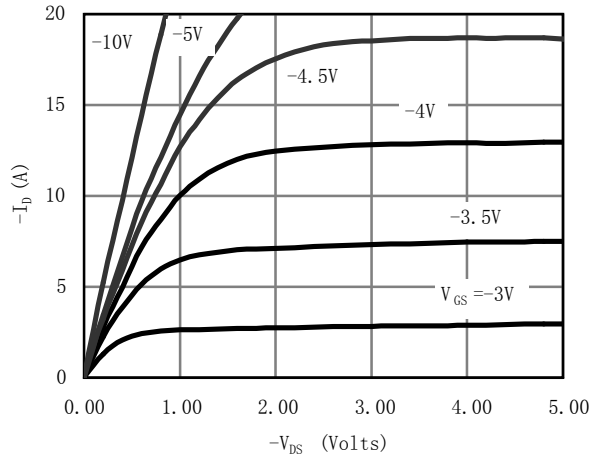


Figure 1: On-Region Characteristics

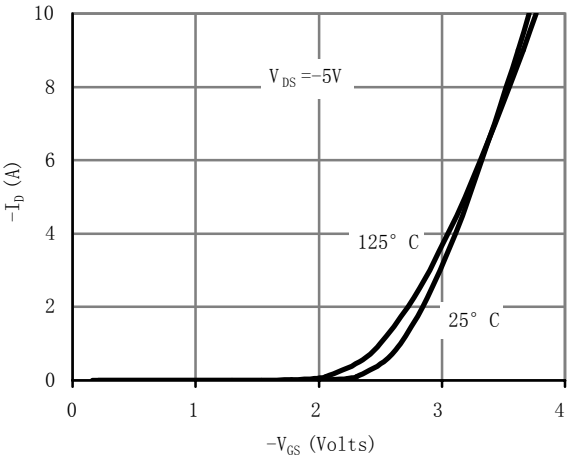


Figure 2: Transfer Characteristics

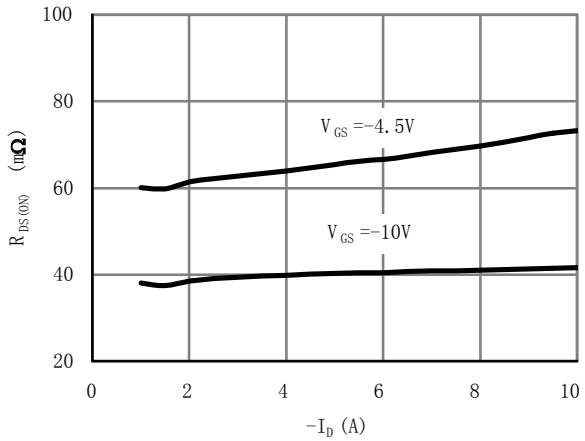


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

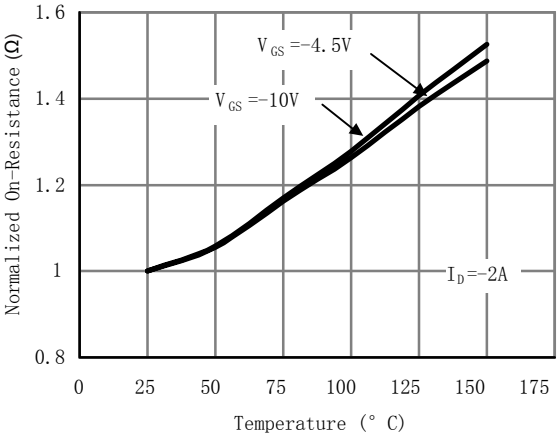


Figure 4: On-Resistance vs. Junction Temperature

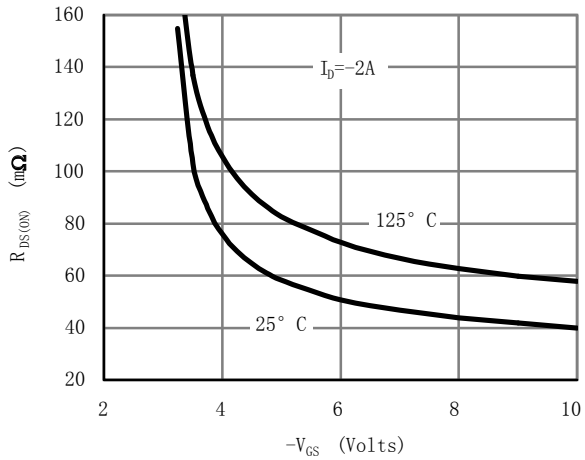


Figure 5: On-Resistance vs. Gate-Source Voltage

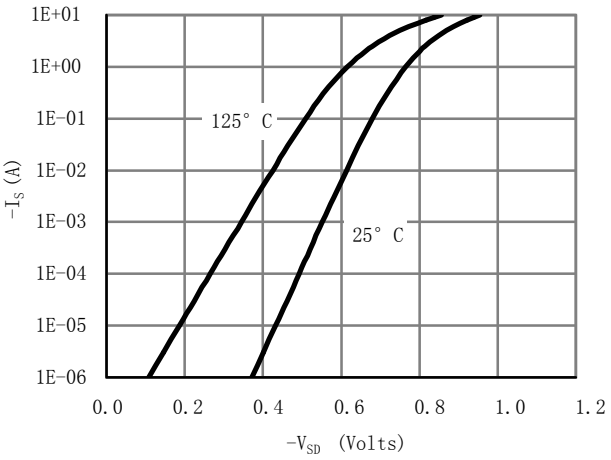


Figure 6: Body-Diode Characteristics

■ Typical Characterisitics

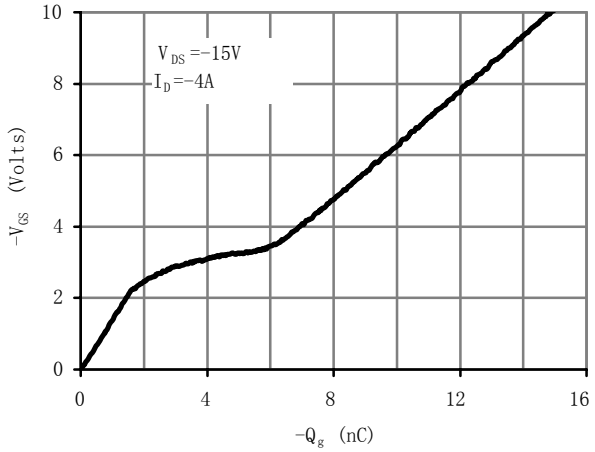


Figure 7: Gate-Charge Characteristics

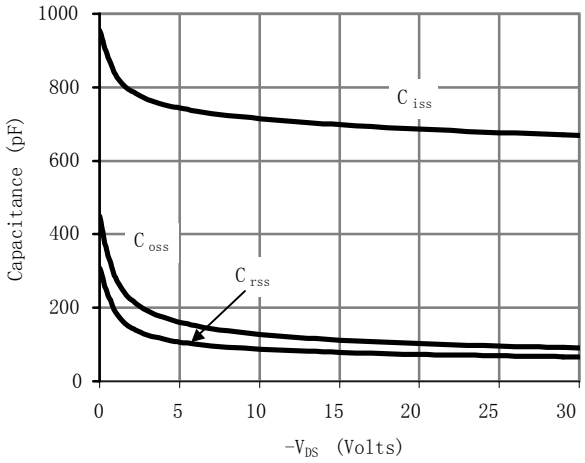


Figure 8: Capacitance Characteristics

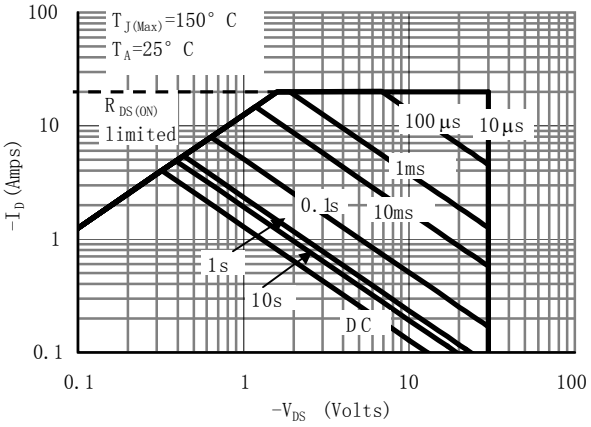


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

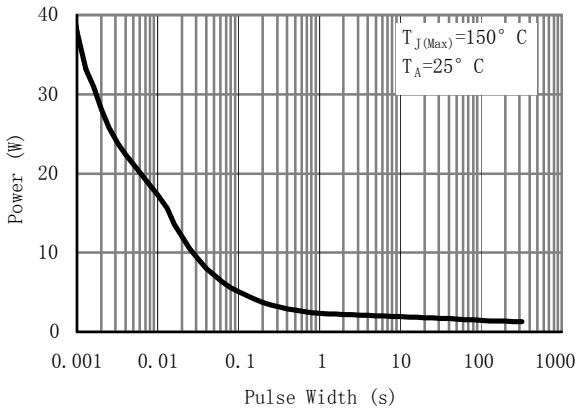


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

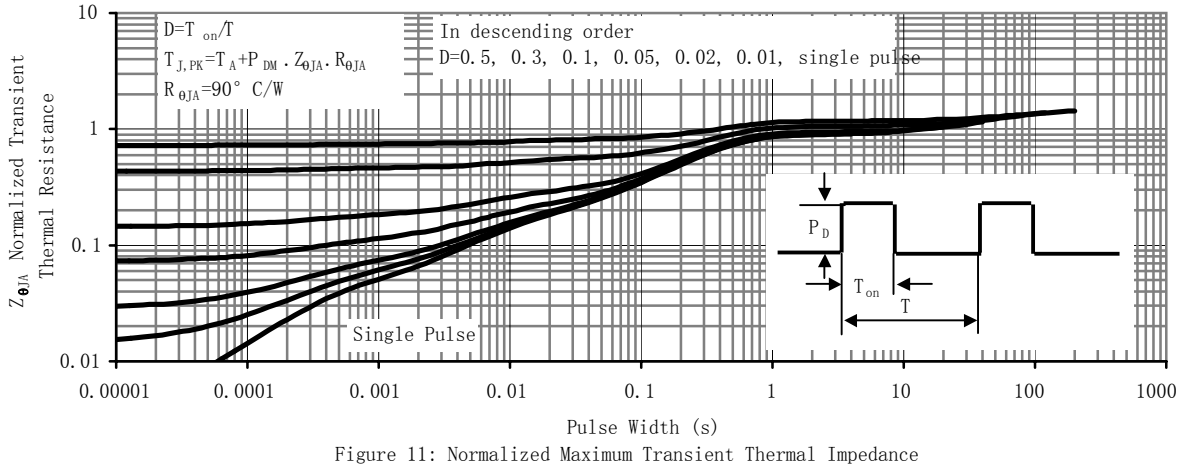


Figure 11: Normalized Maximum Transient Thermal Impedance