-30V /-5A Dual 2P Power MOSFET
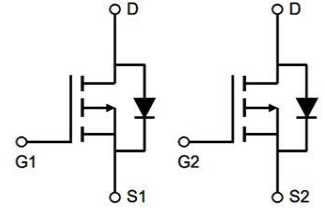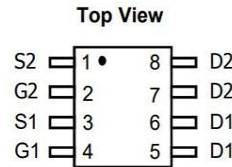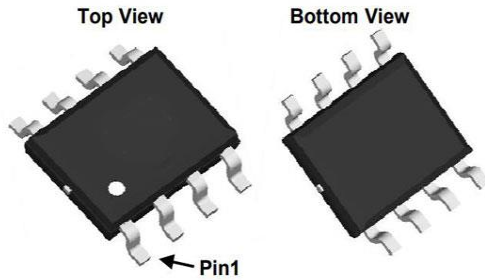
General Description

-30V /-5A Dual 2P Power MOSFET

Very low on-resistance RDS(on) @ VGS=4.5 V

Pb-free lead plating; RoHS compliant

V_{DS}	-30	V
$R_{DS(on),TYP}$@VGS=10V	51.8	mΩ
$R_{DS(on),TYP}$@VGS=4.5	81.4	mΩ
I_D	-5	A

Part ID	Package Type	Marking	Tape and reel infomation
SM4803APRL	SOP8	4803	3000

100% UIS Tested
100% Rg Tested

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	20	±V
Continuous Drain Current A	TA=25°C	I_D	-5.0	A
	TA=70°C		-4.0	
Pulsed Drain Current B		I_{DM}	-8.0	
Avalanche Current G		I_{AR}	-1.6	
Repetitive avalanche energy L=0.1mH G		E_{AR}	-3.7	mJ
Power Dissipation A	TA=25°C	P_D	2	W
	TA=70°C		1.3	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient A	t ≤ 10s	$R_{\theta JA}$	185	277	°C/W
Maximum Junction-to-Ambient A	Steady State		370	444	°C/W
Maximum Junction-to-Lead C	Steady State	$R_{\theta JL}$	111	177	°C/W

STATIC PARAMETERS

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV$_{DSS}$	Drain-Source Breakdown Voltage	I$_D$ = -250uA, V$_{GS}$ = 0V	-30			V
I$_{DSS}$	Zero Gate Voltage Drain Current	VDS=-30V, VGS=0V			-1	uA
					-5	
I$_{GSS}$	Gate-Body leakage current	V$_{DS}$ = 0V, V$_{GS}$ = ±20V			±100	nA
V$_{GS(th)}$	Gate Threshold Voltage	V$_{DS}$ = V$_{GS}$ I$_D$ = 250µA	-1.3	-1.9	-2.5	V
R$_{DS(ON)}$	Static Drain-Source On-Resistance	VGS=-10V, ID=-5A		51.8	74.0	mΩ
		VGS=-4.5V, ID=-5A		81.4	105.8	
g$_{FS}$	Forward Transconductance	VDS=-5V, ID=-5A		55		S
V$_{SD}$	Diode Forward Voltage	IS=-1A,VGS=0V		-0.72	-1	V
I$_S$	Maximum Body-Diode Continuous Current				-5	A

DYNAMIC PARAMETERS

Symbol	Parameter	Conditions	Min	Typ	Max	Units
C$_{iss}$	Input Capacitance	VGS=0V, VDS=-15V, f=1MHz		520	634	pF
C$_{oss}$	Output Capacitance			100	123	pF
C$_{rss}$	Reverse Transfer Capacitance			65	77	pF
R$_g$	Gate resistance	VGS=0V, VDS=0V, f=1MHz			1.1	Ω

SWITCHING PARAMETERS

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Q$_g$ (10V)	Total Gate Charge	VGS=-10V, VDS=-15V, ID=-5A		4.6		nC
Q$_g$ 4.5V)	Total Gate Charge			2.3		
Q$_{gs}$	Gate Source Charge			1.54		
Q$_{gd}$	Gate Drain Charge			2.2		
t$_{D(on)}$	Turn-On DelayTime	VGS=-10V, VDS=-15V,RL=0.75 Ω, RGEN=3Ω		5.5		ns
t$_r$	Turn-On Rise Time			4.4		
t$_{D(off)}$	Turn-Off DelayTime			15.4		
t$_f$	Turn-Off Fall Time			4.95		
t$_{rr}$	Body Diode Reverse Recovery Time	I$_F$=-8A, dI/dt=500A/µs		11		ns
Q$_{rr}$	Body Diode Reverse Recovery Charge	I$_F$=18A, dI/dt=500A/µs		5.3		nC

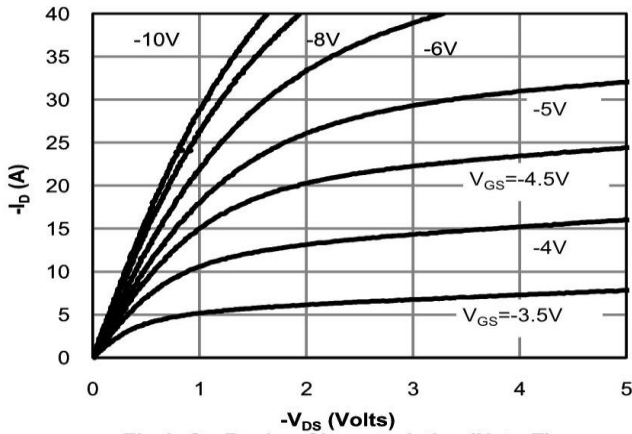## TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

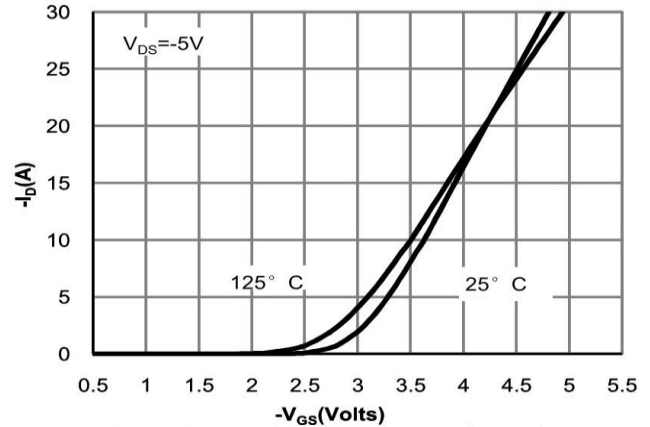Fig 1: On-Region Characteristics (Note E)

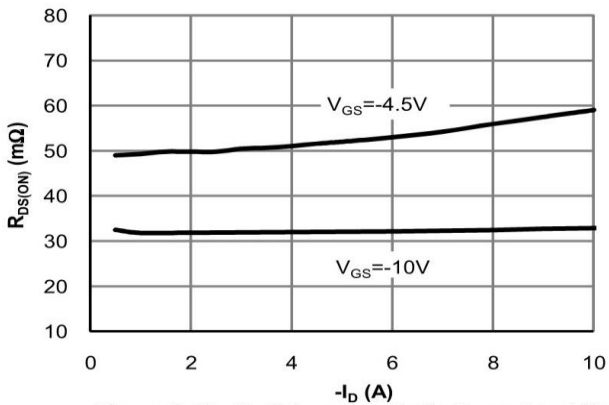Figure 2: Transfer Characteristics (Note E)

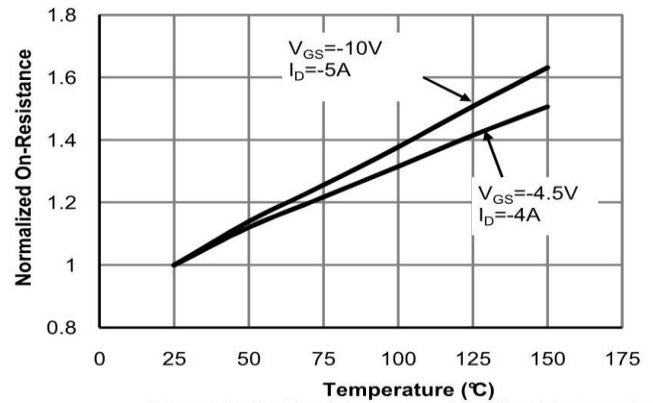Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

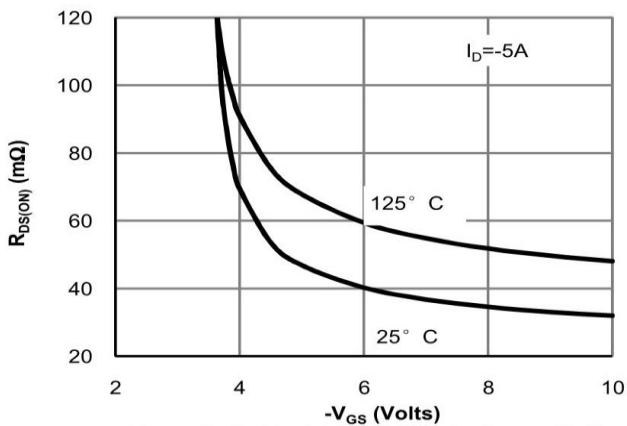Figure 4: On-Resistance vs. Junction Temperature (Note E)

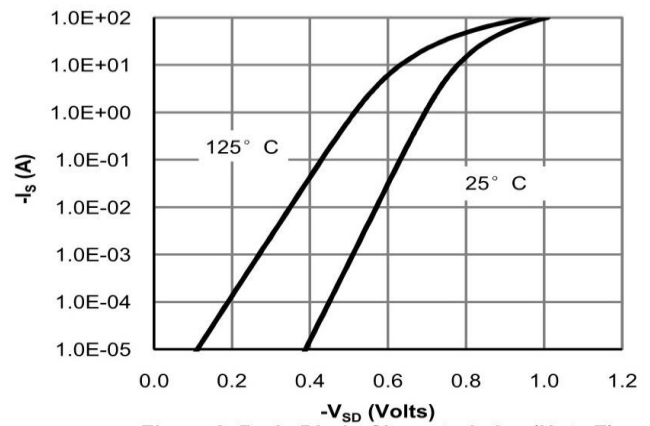Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

Figure 6: Body-Diode Characteristics (Note E)

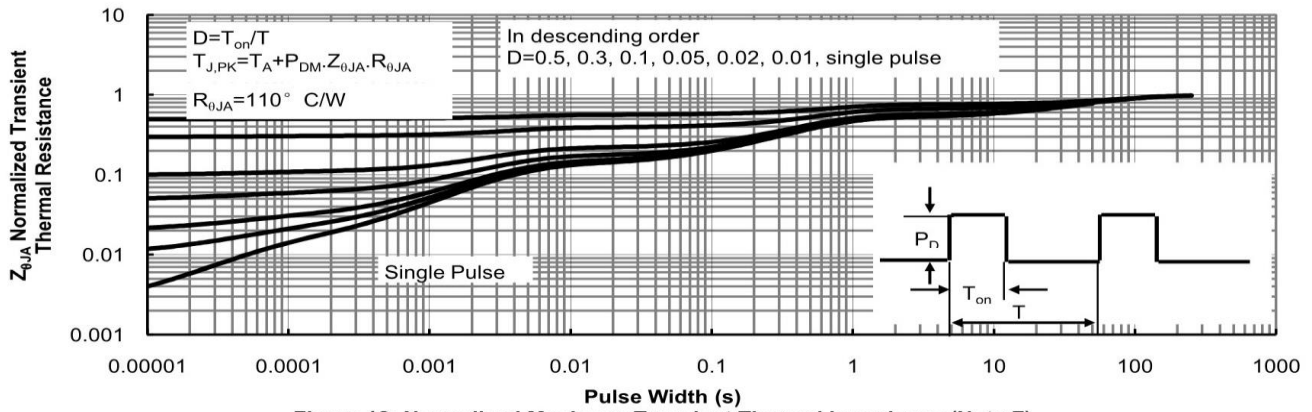**TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS**

Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)

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