

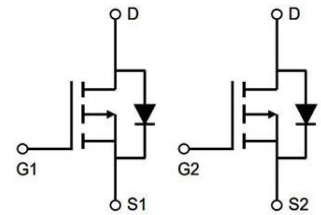
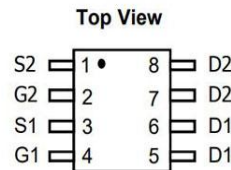
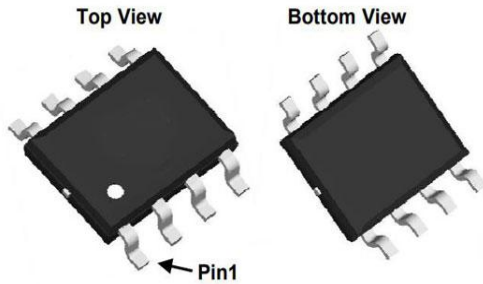
General Description

-30V /-5A Power MOSFET

Very low on-resistance $R_{DS(on)}$ @ $V_{GS}=4.5\text{ V}$

Pb-free lead plating; RoHS compliant

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



Part ID	Package Type	Marking	Tape and reel information
AC5C03C	SOP8	5C03	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	$T_A=25^{\circ}\text{C}$	I_D	-5.0	A
	$T_A=70^{\circ}\text{C}$		-4.0	
Pulsed Drain Current B		I_{DM}	-8.0	
Avalanche Current C		I_{AR}	-1.6	
Repetitive avalanche energy L=0.1mH G		E_{AR}	-3.7	mJ
Power Dissipation A	$T_A=25^{\circ}\text{C}$	P_D	2	W
	$T_A=70^{\circ}\text{C}$		1.3	
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$

Thermal Characteristics

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

STATIC PARAMETERS

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV _{DSS}	Drain-Source Breakdown Voltage	I _D = -250 μ A, V _{GS} = 0V	-30			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-30V, V _{GS} =0V			-1	μ A
					-5	
I _{GSS}	Gate-Body leakage current	V _{DS} = 0V, V _{GS} = $\pm$ 20V			$\pm$ 100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} I _D = 250 μ A	-1.3	-1.9	-2.5	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =-10V, I _D =-5A		51.8	74.0	m Ω
		V _{GS} =-4.5V, I _D =-5A		81.4	105.8	
g _{FS}	Forward Transconductance	V _{DS} =-5V, I _D =-5A		55		S
V _{SD}	Diode Forward Voltage	I _S =-1A, V _{GS} =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	V _{GS} =0V, V _{DS} =-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	V _{GS} =0V, V _{DS} =0V, f=1MHz			1.1	Ω

SWITCHING PARAMETERS

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Q _g (10V)	Total Gate Charge	V _{GS} =-10V, V _{DS} =-15V, I _D =-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	V _{GS} =-10V, V _{DS} =-15V, R _L =0.75 Ω , R _{GEN} =3 Ω		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/ μ s		11		ns
Q _{rr}	Body Diode Reverse Recovery Charge	I _F =18A, dI/dt=500A/ μ s		5.3		nC

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

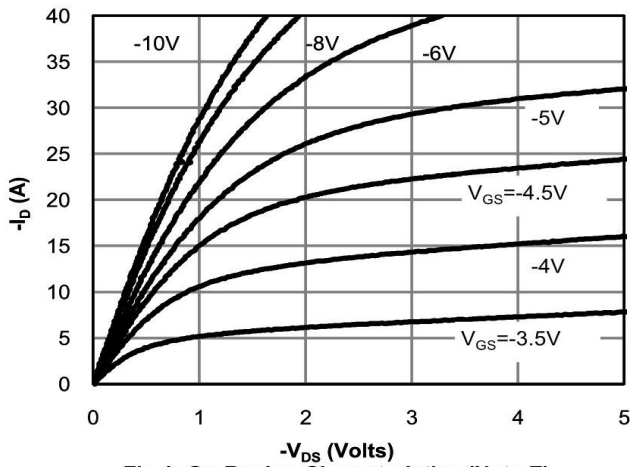


Fig 1: On-Region Characteristics (Note E)

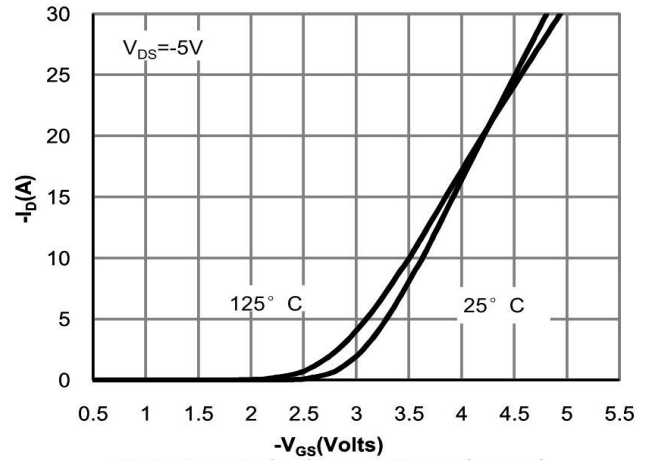


Figure 2: Transfer Characteristics (Note E)

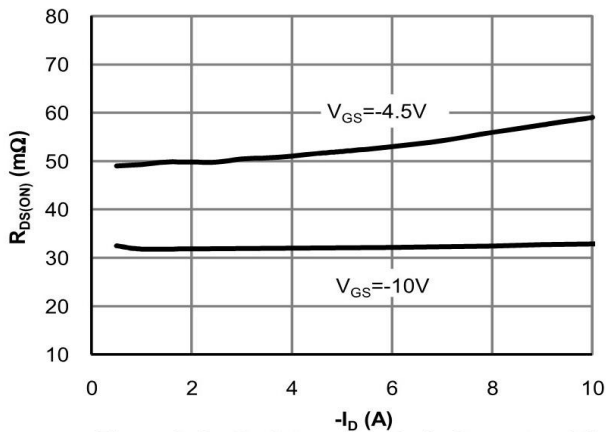


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

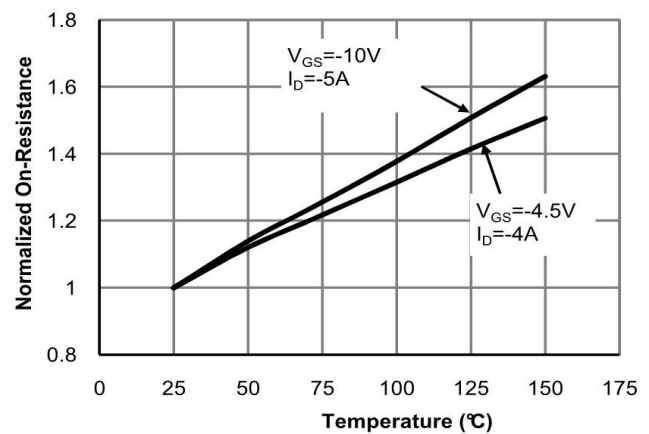


Figure 4: On-Resistance vs. Junction Temperature (Note E)

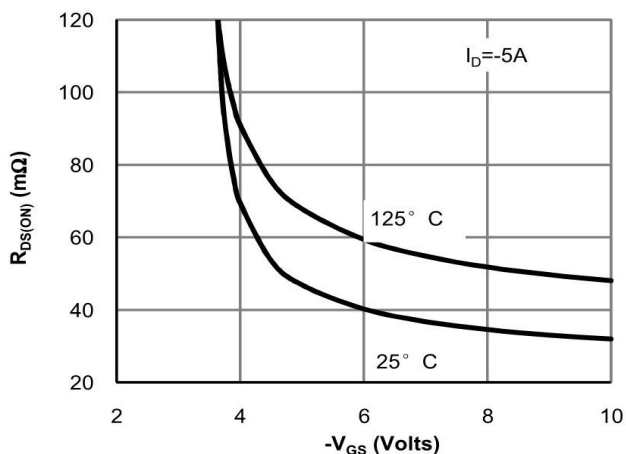


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

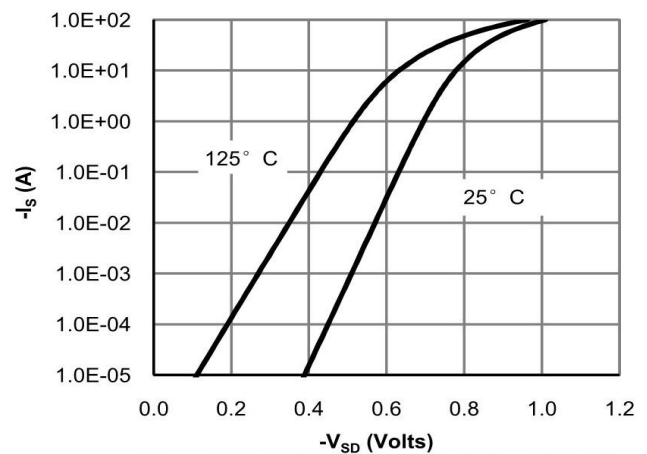


Figure 6: Body-Diode Characteristics (Note E)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

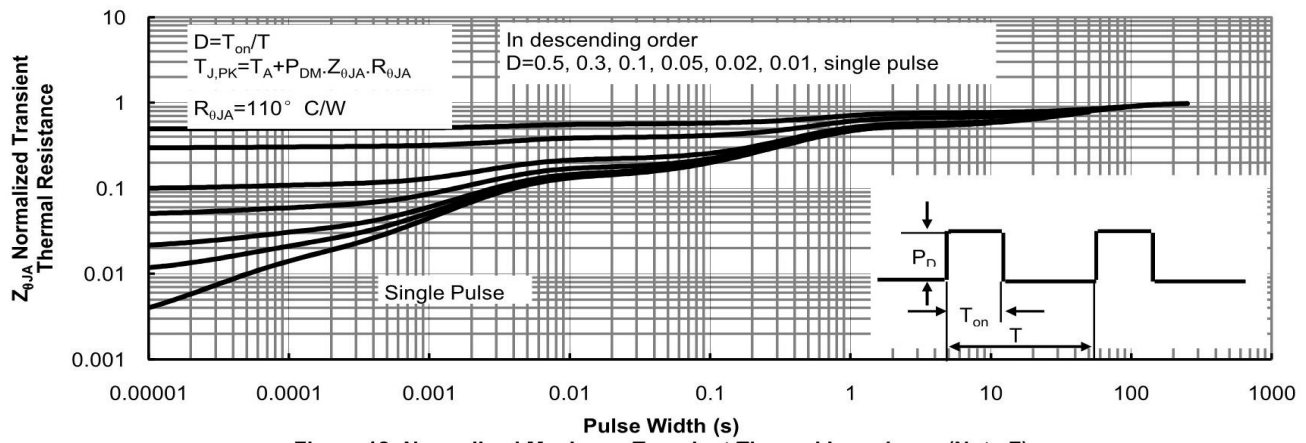


Figure 12: Normalized Maximum Transient Thermal Impedance (Note F)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

