

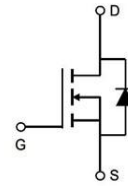
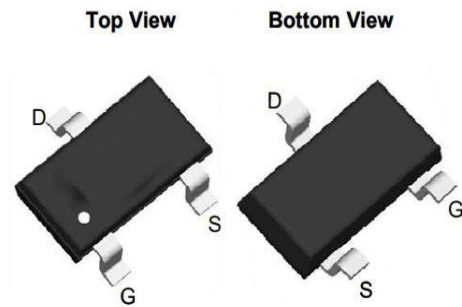
General Description

30V /5.7A Power MOSFET

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

Pb-free lead plating; RoHS compliant

V_{DS}	30	V
$R_{DS(on),TYP@V_{GS}=10V}$	22.4	mΩ
$R_{DS(on),TYP@V_{GS}=4.5}$	35.2	mΩ
I_D	5.7	A



Part ID	Package Type	Marking	Tape and reel information
AC6N03B	SOT23-3	6N03	3000



100% UIS Tested
100% Rg Tested

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	12	±V
Continuous Drain Current A	$T_A=25^{\circ}C$	I_D	5.7	A
	$T_A=70^{\circ}C$		4.7	
Pulsed Drain Current B		I_{DM}	9.1	
Avalanche Current C		I_{AR}	1.8	
Repetitive avalanche energy L=0.1mH G		E_{AR}	4.2	mJ
Power Dissipation A	$T_A=25^{\circ}C$	P_D	1.4	W
	$T_A=70^{\circ}C$		0.9	
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	$t \leq 10s$	R_{JA}	80	120	°C/W
Maximum Junction-to-Ambient A	Steady State		160	192	°C/W
Maximum Junction-to-Lead c	Steady State	R_{JL}	48	76	°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	0.7	1.1	1.5	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =-10V, I _D =5.7A		22.4	32.0	m Ω
		V _{GS} =4.5V, I _D =5.7A		35.2	45.8	
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =5.7A		81		S
V _{SD}	Diode Forward Voltage	I _S =1A, V _{GS} =16V		0.72	1	V
I _S	Maximum Body-Diode Continuous Current				5.7	A

DYNAMIC PARAMETERS

Symbol	Parameter	Conditions	Min	Typ	Max	Units
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, f=1MHz		630	768	pF
C _{oss}	Output Capacitance			75	92	pF
C _{rss}	Reverse Transfer Capacitance			50	59	pF
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz			0.9	Ω

SWITCHING PARAMETERS

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Q _g (10V)	Total Gate Charge	V _{GS} =10V, V _{DS} =15V, I _D =5.7A		6		nC
Q _g 4.5V)	Total Gate Charge			3		
Q _{gs}	Gate Source Charge			1.26		
Q _{gd}	Gate Drain Charge			1.8		
t _{D(on)}	Turn-On DelayTime	V _{GS} =10V, V _{DS} =15V, R _L =0.75 Ω , R _{GEN} =3 Ω		4.25		ns
t _r	Turn-On Rise Time			3.4		
t _{D(off)}	Turn-Off DelayTime			11.9		
t _f	Turn-Off Fall Time			3.825		
t _{rr}	Body Diode Reverse Recovery Time	I _F =-8A, dI/dt=500A/ μ s		8.5		ns
Q _{rr}	Body Diode Reverse Recovery Charge	I _F =18A, dI/dt=500A/ μ s		2.6		nC

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

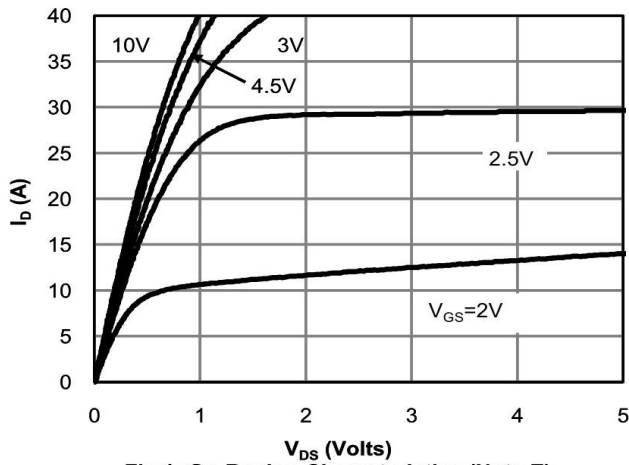


Fig 1: On-Region Characteristics (Note E)

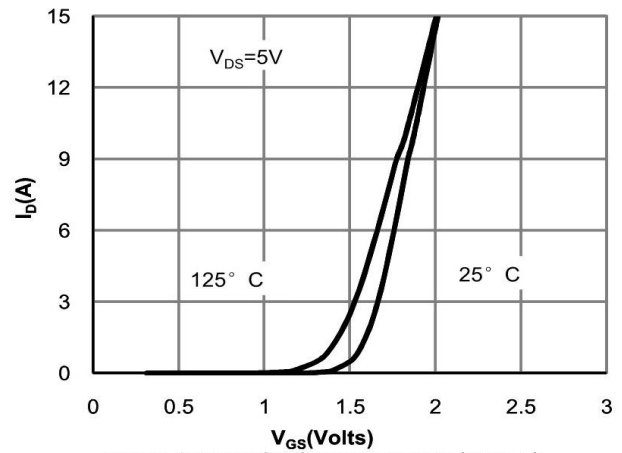


Figure 2: Transfer Characteristics (Note E)

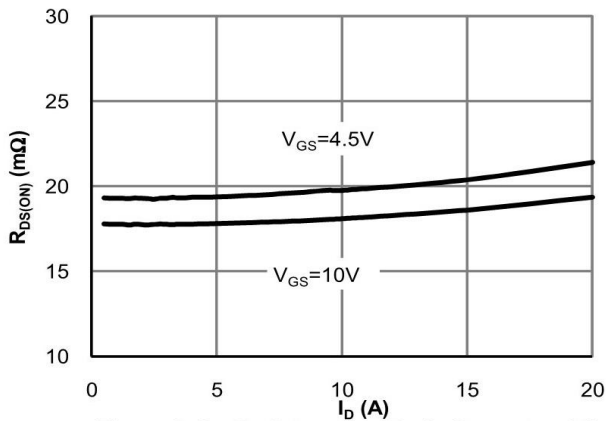


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

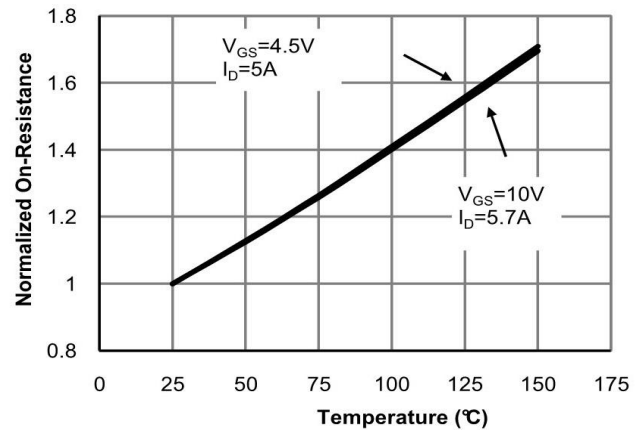


Figure 4: On-Resistance vs. Junction Temperature (Note E)

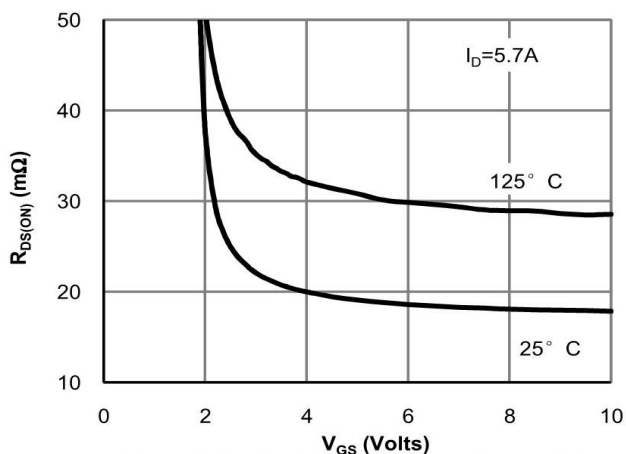


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

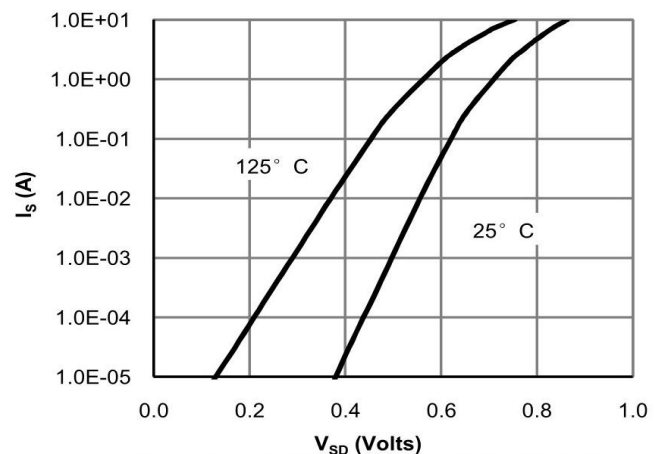
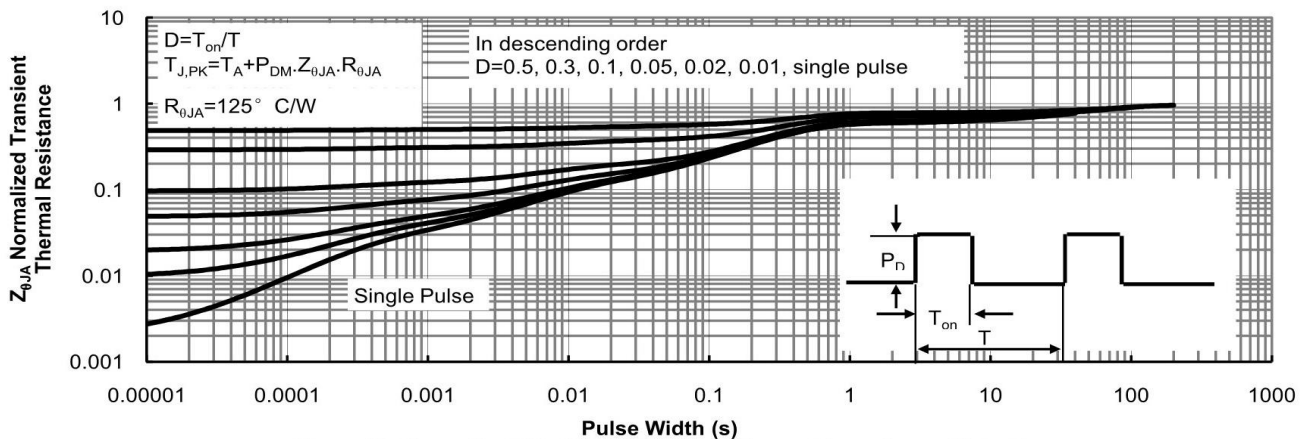
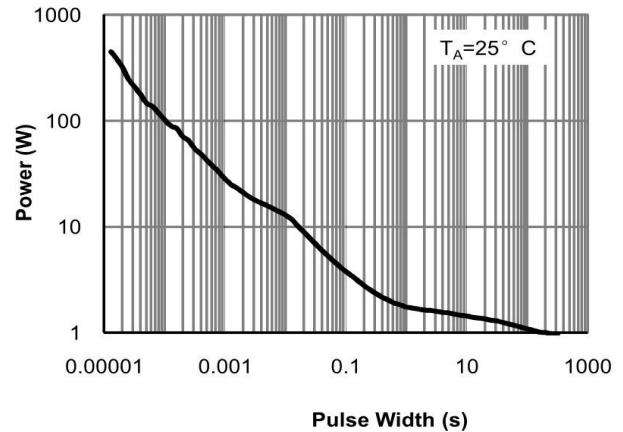
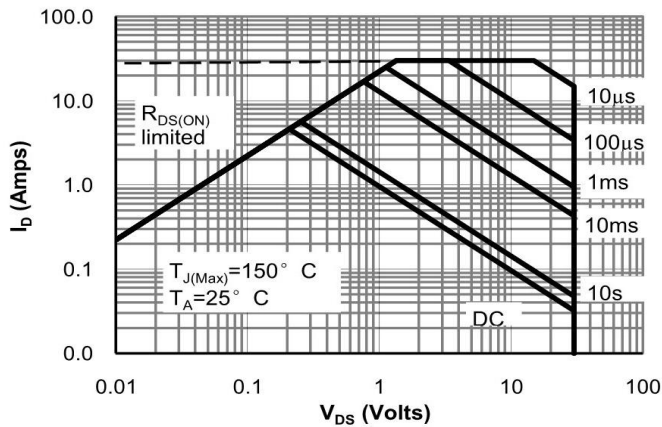
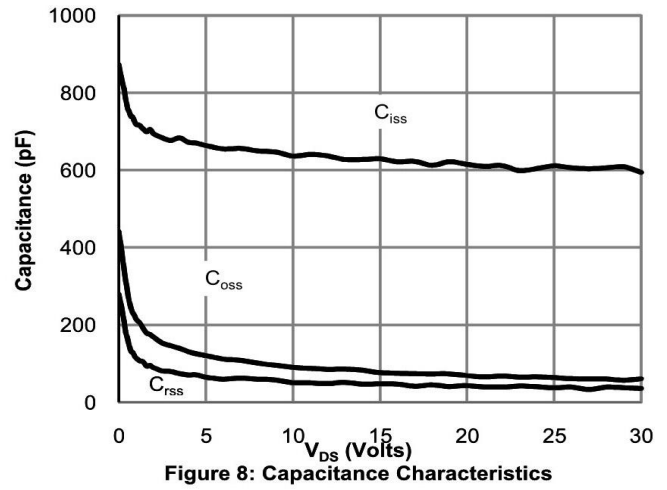
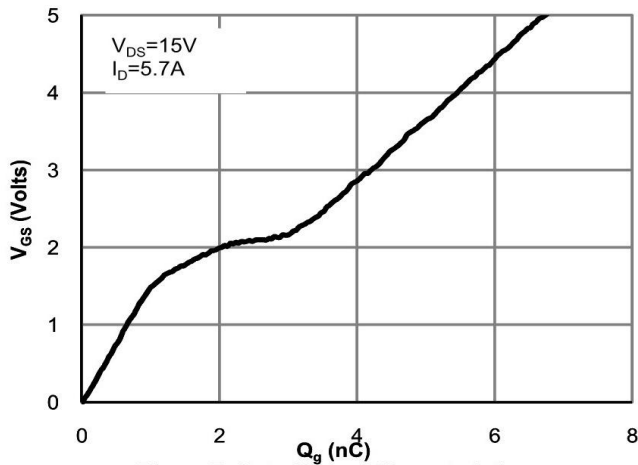
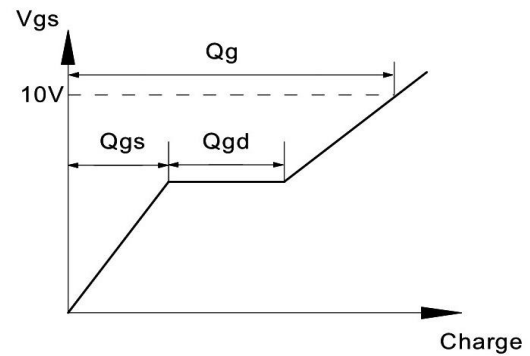
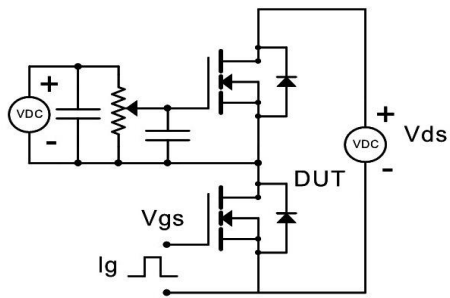


Figure 6: Body-Diode Characteristics (Note E)

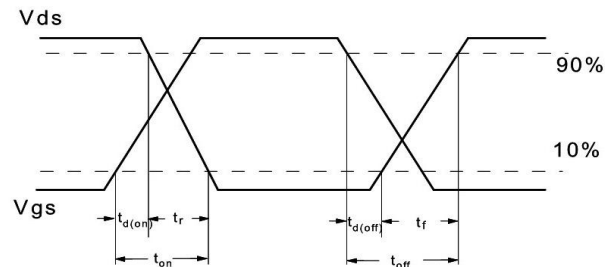
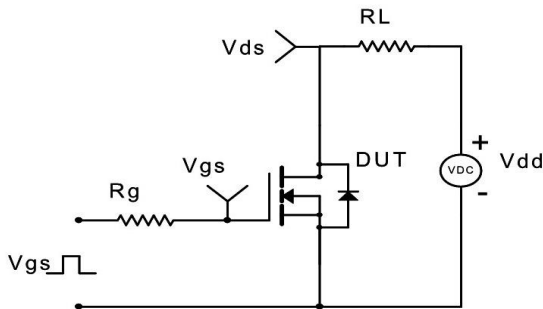
TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS



Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms

