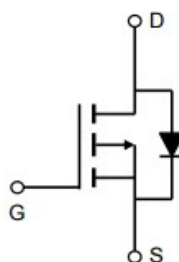
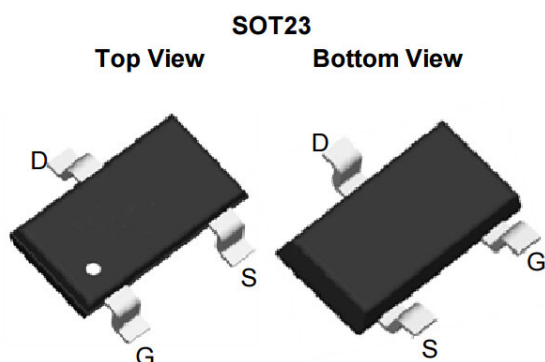


General Description

The MOSFET uses advanced trench technology to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use as a load switch or in PWM applications

V_{DS}	-30	V
$R_{DS(on),TYP@VGS=10V}$	45	$m\Omega$
$R_{DS(on),TYP@VGS=4.5}$	60	$m\Omega$
I_D	-5.1	A



Part ID	Package Type	Marking	Tape and reel information
ACB5P03A	SOT23-3	A19T	3000PCS/Reel



100% UIS Tested
100% Rg Tested

Absolute Maximum Ratings $T = 25^{\circ}C$ unless otherwise noted

Parameter		Symbol	Maximum	Units
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current I_A	$T_A = 25^{\circ}C$	I_D	-5.1	A
	$T_A = 70^{\circ}C$		-3.5	
Pulsed Drain Current I_B		I_{DM}	-25	
Avalanche Current I_C		I_{AR}	16	
Repetitive avalanche energy $L=0.1mH$ I_C		E_{AR}	16	mJ
Power Dissipation P_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	$^{\circ}C$

Thermal Characteristics

Parameter		Symbol	Typ	Max	Units
Maximum Junction-to-Ambient A	$t \leq 10s$	R_{JA}	70	90	$^{\circ}C/W$
Maximum Junction-to-Ambient A	Steady State		100	120	$^{\circ}C/W$
Maximum Junction-to-Lead c	Steady State	R_{JL}	62	88	$^{\circ}C/W$

STATIC PARAMETERS

Electrical Characteristics ($T_J = 25^{\circ}C$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
BV_{DSS}	Drain-Source Breakdown Voltage	$I_D = -250\mu A, V_{GS} = 0V$	-30			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = -30V, V_{GS} = 0V, T_J = 25^{\circ}C$			-1	μA
		$V_{DS} = -30V, V_{GS} = 0V, T_J = 55^{\circ}C$			-5	
I_{GSS}	Gate-Body leakage current	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	-0.7	-1	-1.4	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS} = -4.5V, I_D = -2.5A$		45	60	$m\Omega$
		$V_{GS} = -2.5V, I_D = -1.8A$		60	80	
g_{FS}	Forward Transconductance	$V_{DS} = -5V, I_D = -5A$		10		S
V_{SD}	Diode Forward Voltage	$I_S = -0.7A, V_{GS} = 0V$		-0.7	-1.	V
I_S	Maximum Body-Diode Continuous Current				-2	A

DYNAMIC PARAMETERS

Symbol	Parameter	Conditions	Min	Typ	Max	Units
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=-15V, f=1MHz$		645		pF
C_{oss}	Output Capacitance			80		pF
C_{rss}	Reverse Transfer Capacitance			55		pF
R_g	Gate resistance	$V_{GS}=0V, V_{DS}=0V, f=1MHz$	4	7.5	12	Ω

SWITCHING PARAMETERS

Symbol	Parameter	Conditions	Min	Typ	Max	Units
$Q_g(10V)$	Total Gate Charge	$V_{GS}=-10V, V_{DS}=-4.5V, I_D=-3A$		14		nC
$Q_g(4.5V)$	Total Gate Charge			7		
Q_{gs}	Gate Source Charge			1.5		
Q_{gd}	Gate Drain Charge			1.3		
$t_{D(on)}$	Turn-On DelayTime	$V_{GS}=-10V, V_{DS}=-4.5V, R_L=1\Omega,$		11	22	ns
t_r	Turn-On Rise Time			5.5	60	
$t_{D(off)}$	Turn-Off DelayTime			19	55	
t_f	Turn-Off Fall Time			7	22	
t_{rr}	Body Diode Reverse Recovery Time	$I_F=-3A, dI/dt=500A/\mu s$		11		ns
Q_{rr}	Body Diode Reverse Recovery Charge	$I_F=-3A, dI/dt=500A/\mu s$		5.3		nC

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

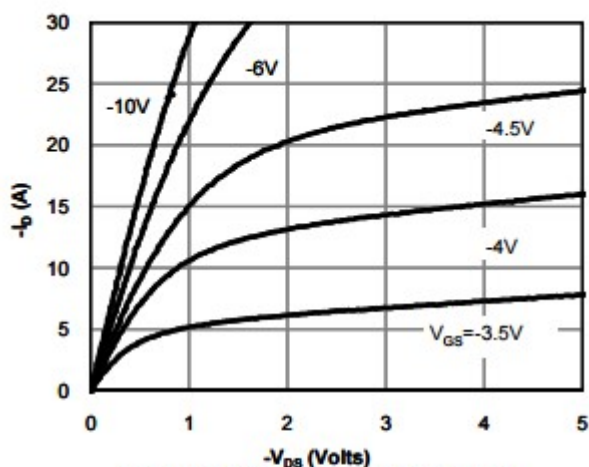


Fig 1: On-Region Characteristics (Note E)

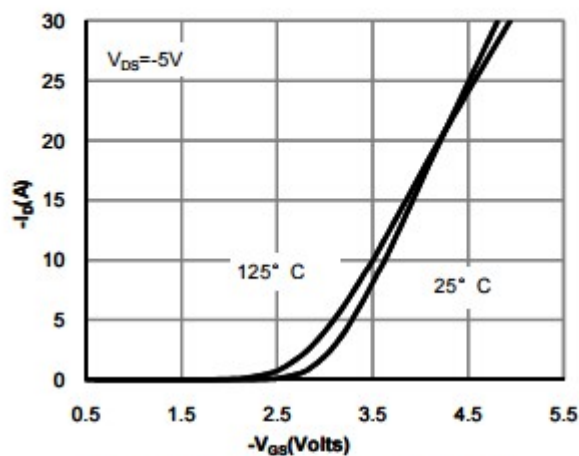


Figure 2: Transfer Characteristics (Note E)

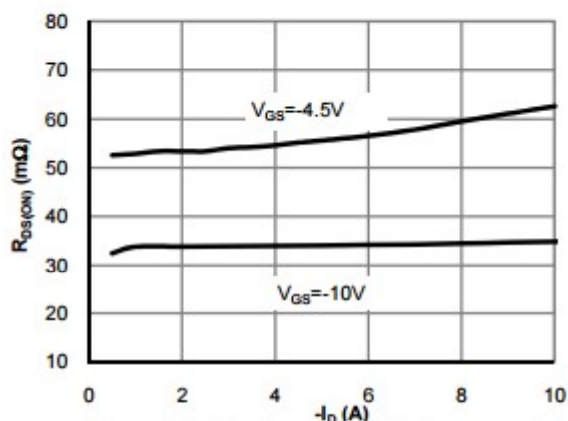


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

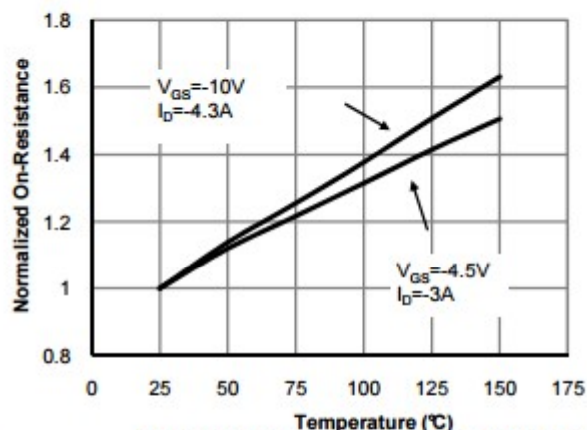


Figure 4: On-Resistance vs. Junction Temperature (Note E)

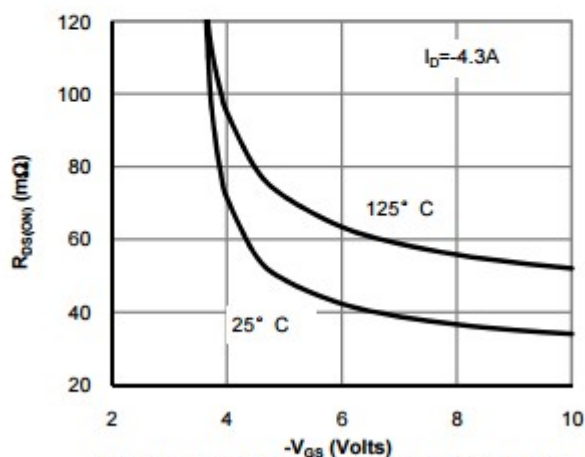


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

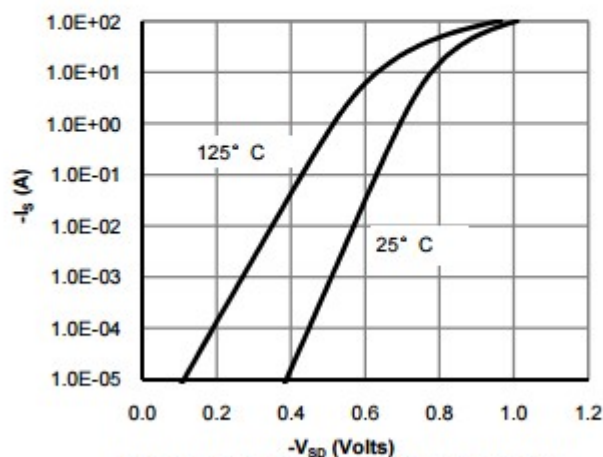


Figure 6: Body-Diode Characteristics (Note E)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

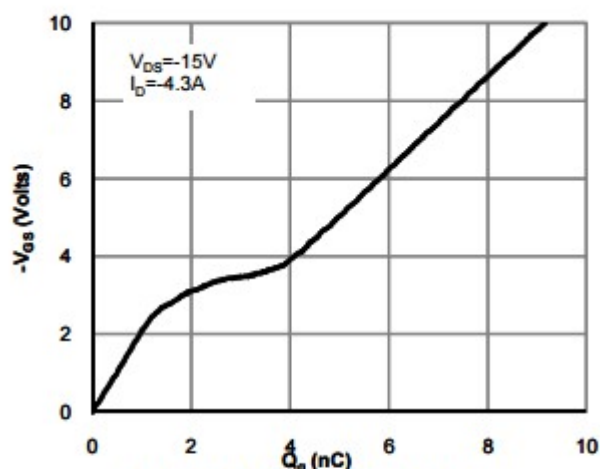


Figure 7: Gate-Charge Characteristics

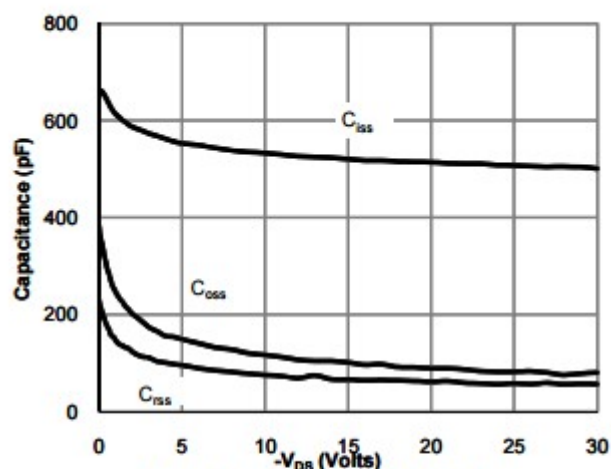


Figure 8: Capacitance Characteristics

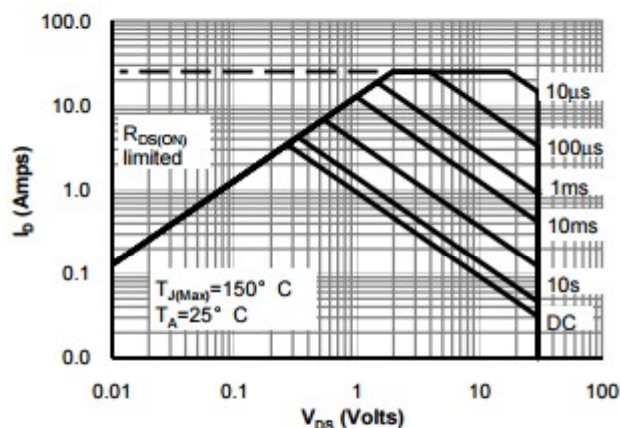


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

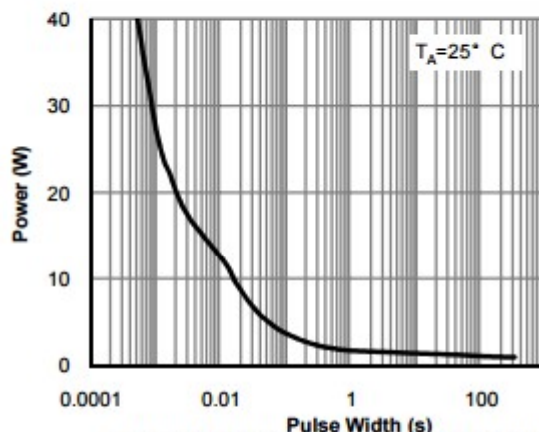


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

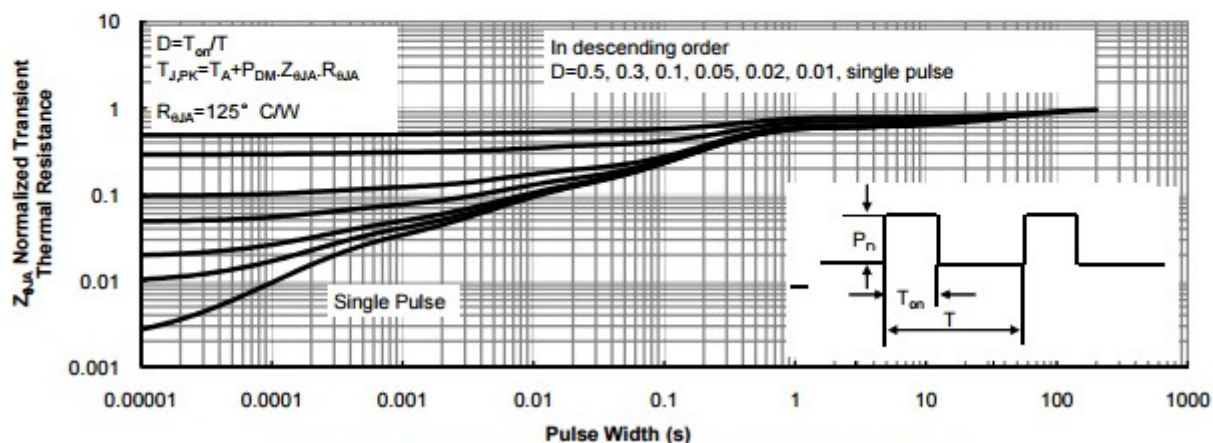
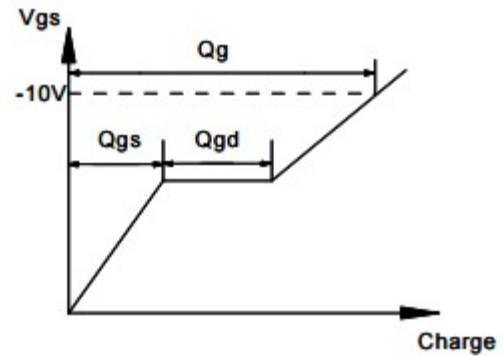
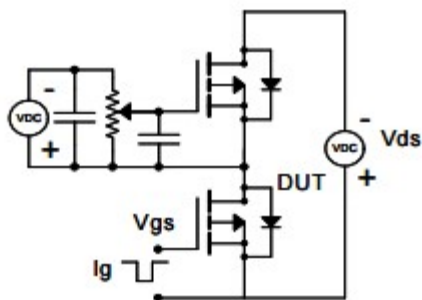
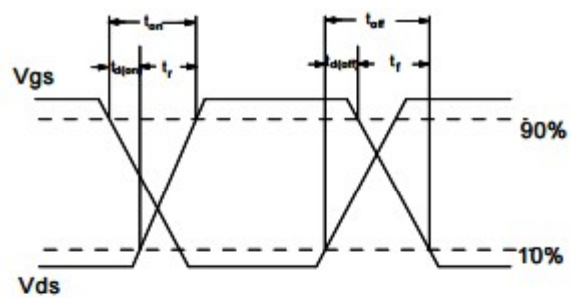
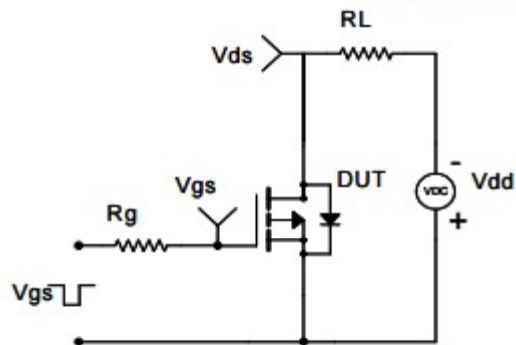


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

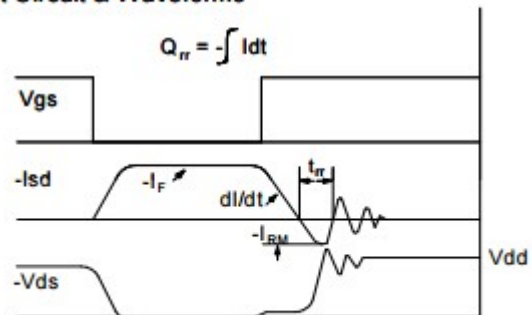
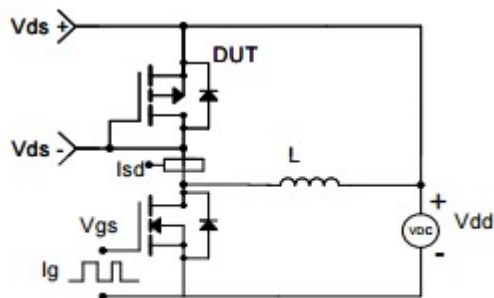
Gate Charge Test Circuit & Waveform



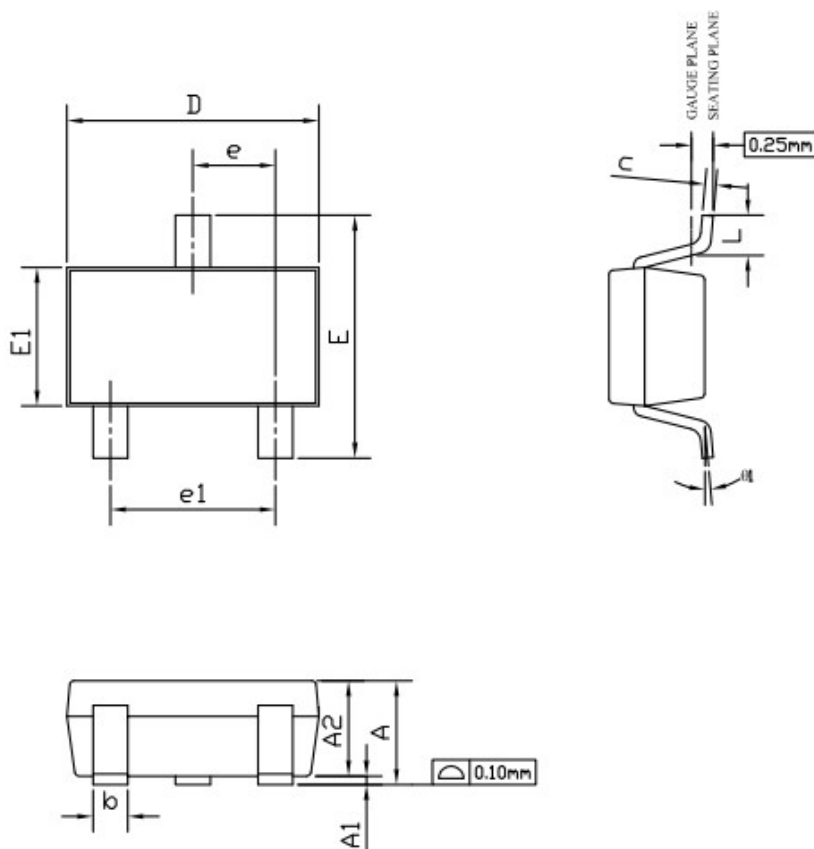
Resistive Switching Test Circuit & Waveforms



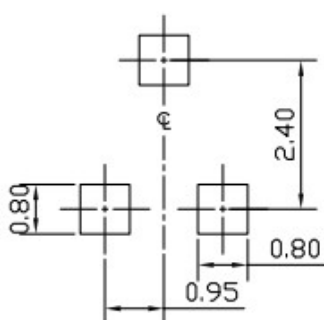
Diode Recovery Test Circuit & Waveforms



SOT23-3



RECOMMENDED LAND PATTERN



UNIT: mm

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.85	—	1.25	0.033	—	0.049
A1	0.00	—	0.13	0.000	—	0.005
A2	0.70	1.00	1.15	0.028	0.039	0.045
b	0.30	0.40	0.50	0.012	0.016	0.020
c	0.08	0.13	0.20	0.003	0.005	0.008
D	2.80	2.90	3.10	0.110	0.114	0.122
E	2.60	2.80	3.00	0.102	0.110	0.118
E1	1.40	1.60	1.80	0.055	0.063	0.071
e	0.95 BSC			0.037 BSC		
e1	1.90 BSC			0.075 BSC		
L	0.30	—	0.60	0.012	—	0.024
Ø1	0°	5°	8°	0°	5°	8°

NOTE

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONS ARE INCLUSIVE OF PLATING.
3. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
MOLD FLASH AT THE NON-LEAD SIDES SHOULD BE LESS THAN 6 MILS EACH.
4. DIMENSION L IS MEASURED IN GAUGE PLANE.
5. CONTROLLING DIMENSION IS MILLIMETER.
CONVERTED INCH DIMENSIONS ARE NOT NECESSARILY EXACT.