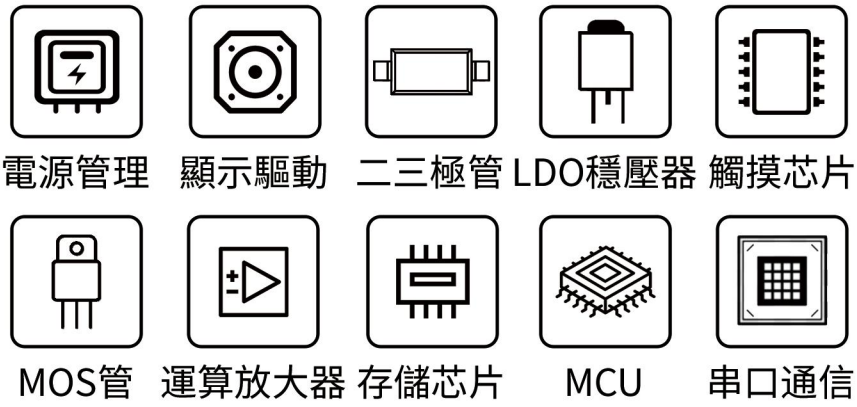
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3401B A19T-TD(56K)

產品規格說明書

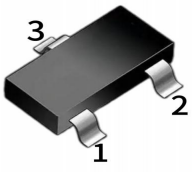
Features

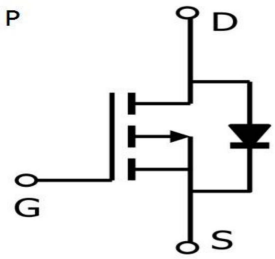
•Trench FET Power MOSFET
• High Speed Switching

Product Summary

V_{DS}	-30V
I_D	-4.1A
$R_{DS(ON)}$ (at V_{GS}=-10V)	< 60mΩ
$R_{DS(ON)}$ (at V_{GS} =-4.5V)	< 70mΩ
$R_{DS(ON)}$ (at V_{GS}=-2.5V)	< 90mΩ

SOT-23
1.BASE
2.EMITTER
3.COLLECTOR





Order Information

Product	Package	Marking	Packing
3401B-TD	SOT-23	A19T	3000PCS/Reel

Maximum Ratings(Ta=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±12	
Continuous Drain Current	I_D	-4.1	A
Pulsed Drain Current ①	I_{DM}	-27	
Continuous Source-Drain Current(Diode Conduction)	I_S	-2	
Power Dissipation ②	P_D	1.4	W
Thermal Resistance from Junction to Ambient (t≤5s)	$R_{\theta JA}$	125	℃/W
Operating Junction	T_J	150	℃
Storage Temperature	T_{STG}	-55~+150	℃

Electrical Characteristics(TJ=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters ③						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS = 0V, ID = -250μA	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	VDS =VGS, ID = -250μA	-0.6	-0.95	-1.2	V
Gate-Body leakage Current	I_{GSS}	VDS =0V, VGS = ±12V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	VDS = -30V, VGS =0V			1	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	VGS = -10V, ID = -4.1A		50	60	mΩ
		VGS = -4.5V, ID = -3.6A		60	70	mΩ
		VGS = -2.5V, ID = -2A		71	90	mΩ
Forward Transconductance	gFs	VDS = -4.5V, ID = -4.1A	7			S
Diode Forward Voltage	V_{SD}	IS=-1A,VGS=0V		-0.7	-1.3	V
Dynamic Parameters ④						
Input Capacitance	C_{iss}	VDS = -15V,VGS =0V, f=1MHz		645		pF
Output Capacitance	C_{oss}			80		pF
Reverse Transfer Capacitance	C_{rss}			55		pF
Total Gate Charge	Q_g	VDS = -15V,VGS = -10V, ID =-4.1A		14		nC
Gate Source Charge	Q_{gs}			1.5		nC
Gate Drain Charge	Q_{gd}			2.5		nC
Gate Resistance	R_g	f=1MHz		8		Ω
Switching Parameters ④						
Turn-On DelayTime	$t_{d(on)}$	VDD= -15V RL=4Ω, ID ≈ -1A, VGEN=- 10V,Rg=3Ω		6.3		ns
Turn-On Rise Time	tr			3.2		ns
Turn-Off DelayTime	td(off)			41		ns
Turn-Off Fall Time	tf			9		ns

Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

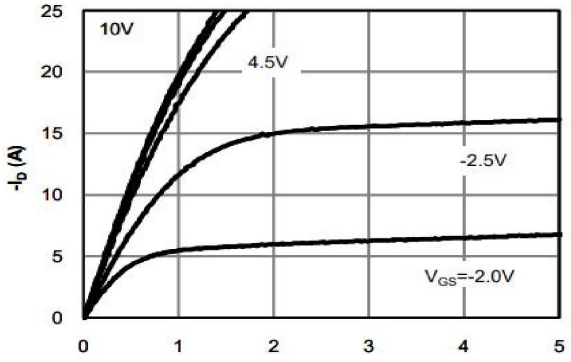


Fig 1: On-Region Characteristics (Note E)

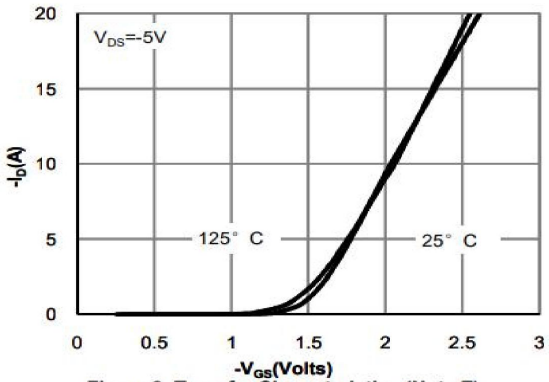


Figure 2: Transfer Characteristics (Note E)

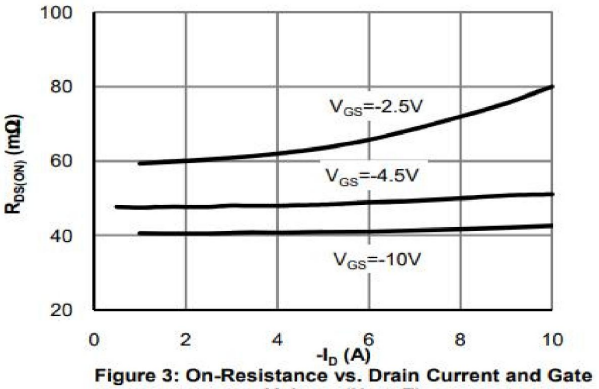


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

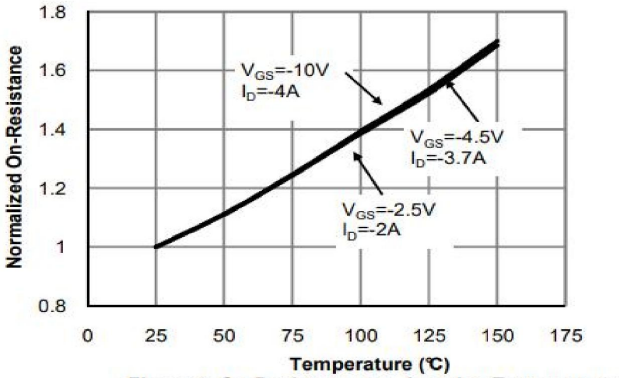


Figure 4: On-Resistance vs. Junction Temperature (Note E)

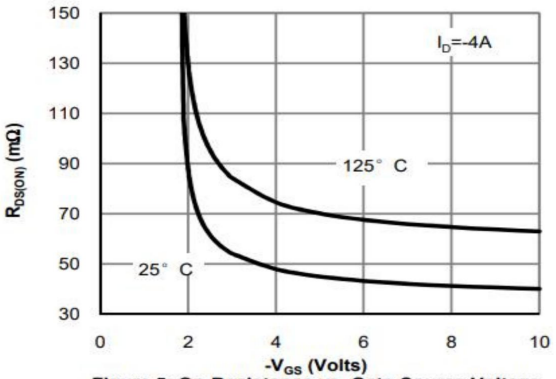


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

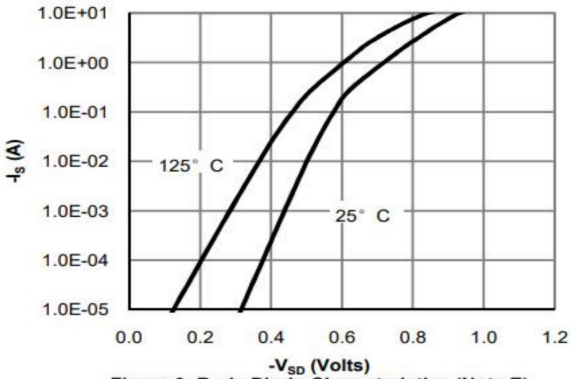


Figure 6: Body-Diode Characteristics (Note E)

Typical Electrical and Thermal Characteristics

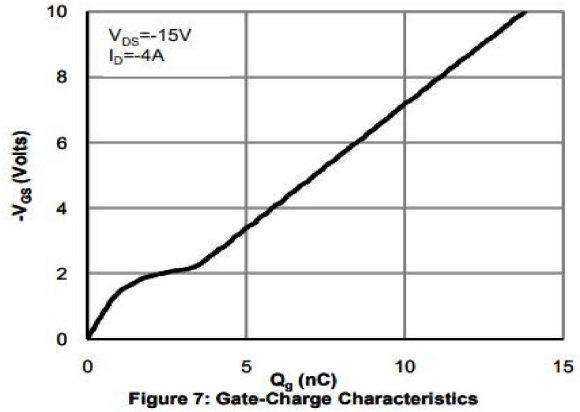


Figure 7: Gate-Charge Characteristics

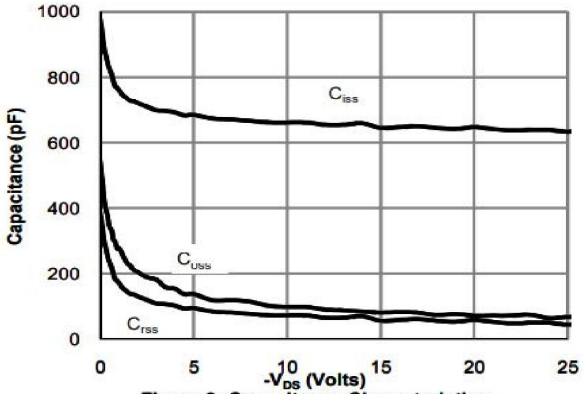


Figure 8: Capacitance Characteristics

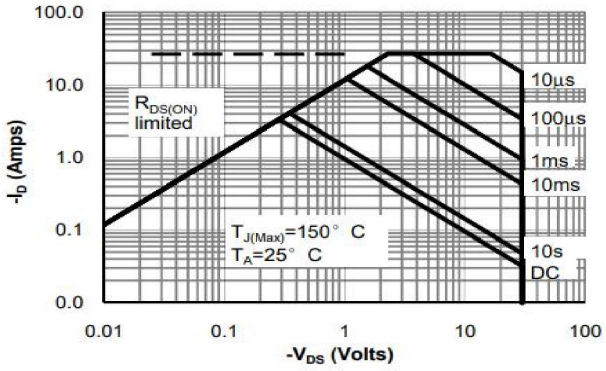
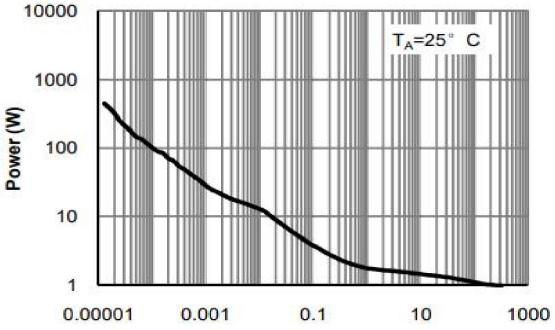
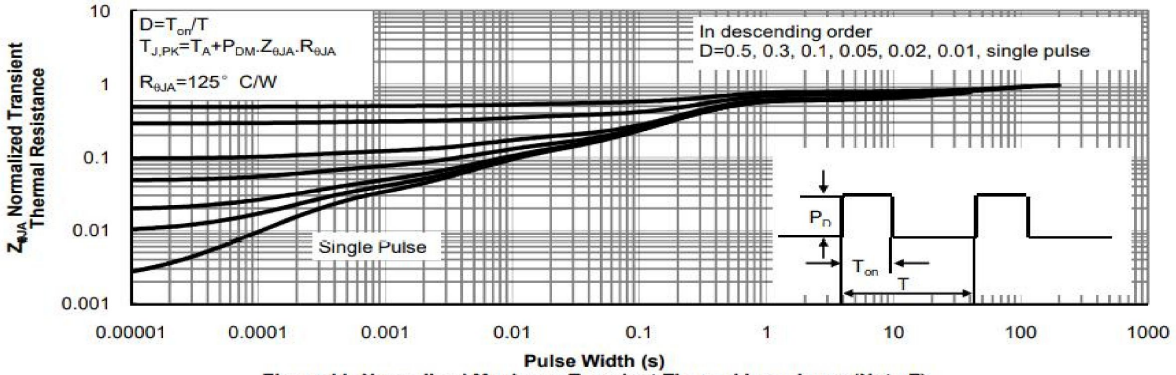


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)



Pulse Width (s)

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

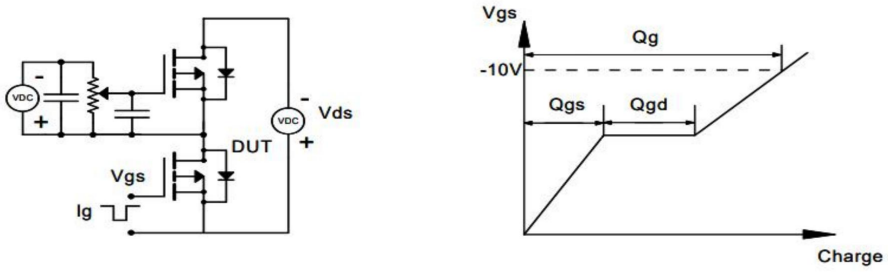


Pulse Width (s)

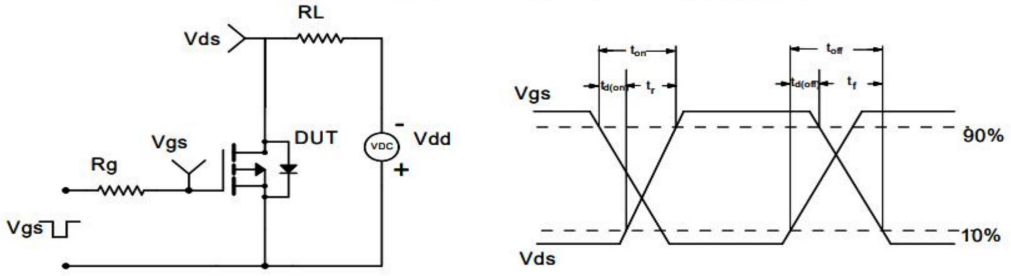
Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

Typical Electrical and Thermal Characteristics

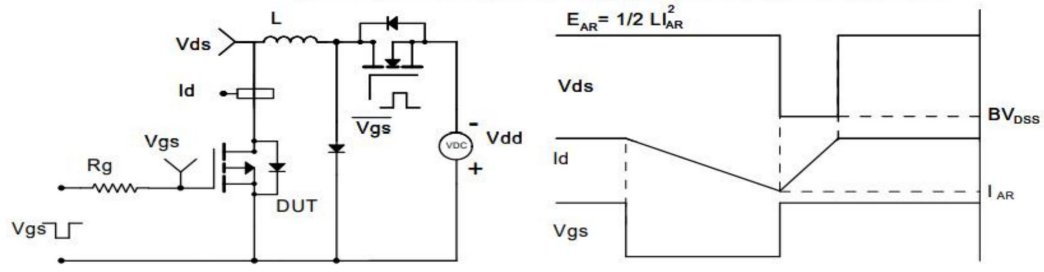
Gate Charge Test Circuit & Waveform



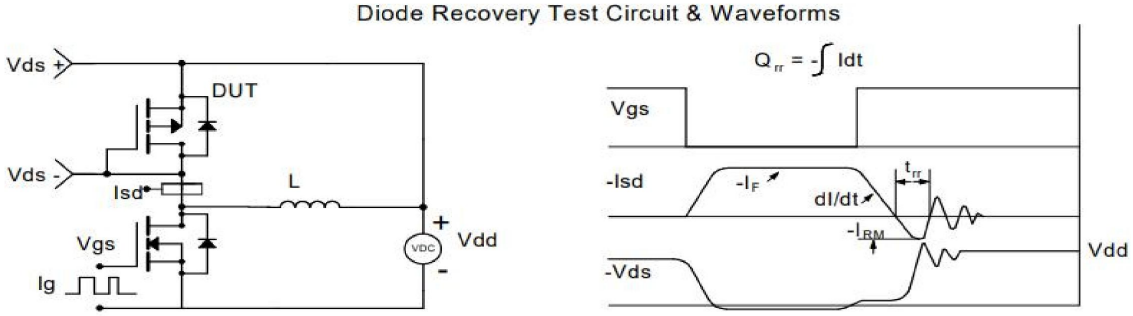
Resistive Switching Test Circuit & Waveforms



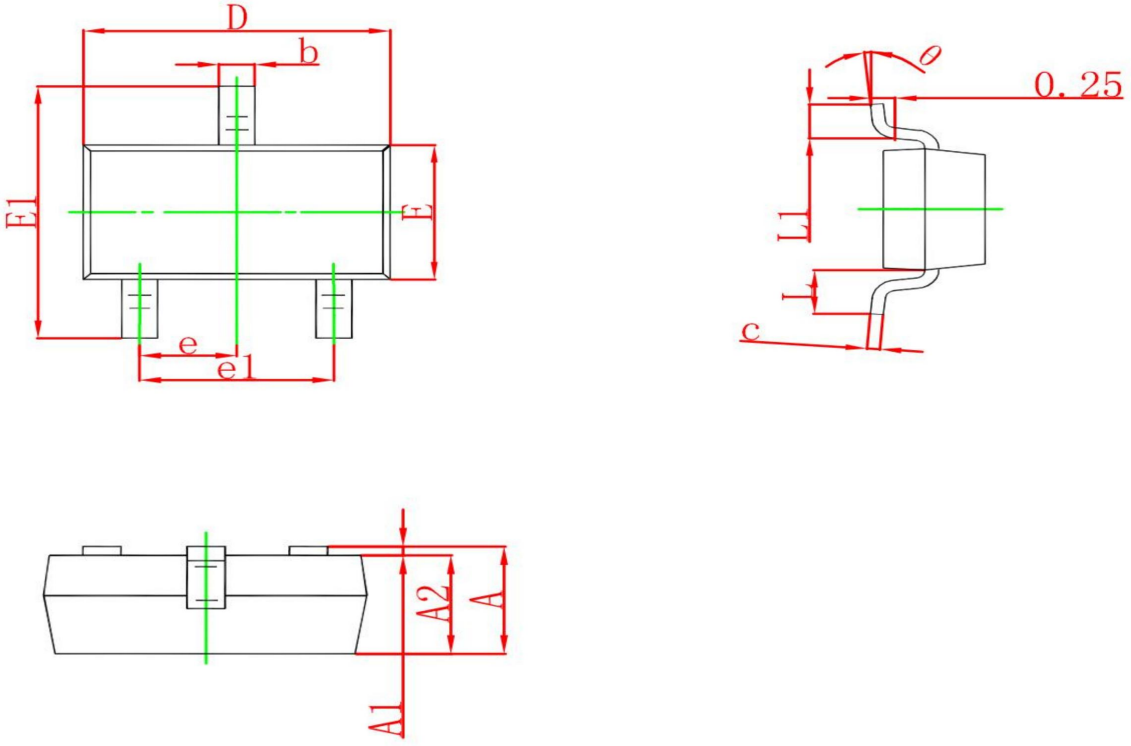
Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



SOT-23 Package Outline Dimesions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°