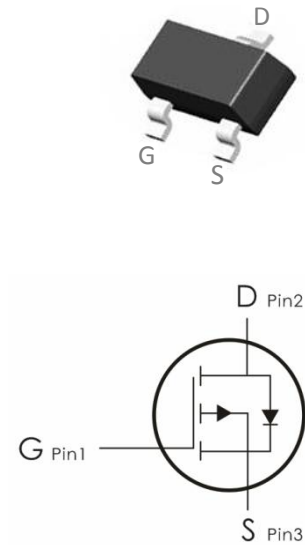


Description:

This P-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge. It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=-30V, I_D=-4.2A, R_{DS(ON)}<52m\ \Omega$ @ $V_{GS}=-10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DO3401B	A19T	SOT-23	3000pcs/Reel

Absolute Maximum Ratings: ($T_A=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current	-4.2	A
I_{DM}	Pulse Drain Current Tested ¹	-30	A
P_D	Power Dissipation	1.2	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ²	104	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\ \mu\text{A}$	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS}=0V, V_{DS}=-30V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	---	---	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate-Source Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\ \mu\text{A}$	-0.6	---	-1.2	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS}=-10V, I_D=-4.3A$	---	40	52	m Ω
		$V_{GS}=-4.5V, I_D=-3.5A$	---	44	60	
		$V_{GS}=-2.5V, I_D=-2.4A$	---	55	72	
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=-12V, V_{GS}=0V, f=1\text{MHz}$	---	670	---	pF
C_{oss}	Output Capacitance		---	275	---	
C_{rss}	Reverse Transfer Capacitance		---	100	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	$V_{DS}=-12V, I_D=-4A$ $V_{GEN}=-10V, R_G=3.3\Omega$	---	9	---	ns
t_r	Rise Time		---	15	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	23	---	ns
t_f	Fall Time		---	21	---	ns
Q_g	Total Gate Charge	$V_{GS}=-4.5V, V_{DS}=-20V,$ $I_D=-4A$	---	6.2	---	nC
Q_{gs}	Gate-Source Charge		---	2.8	---	nC
Q_{gd}	Gate-Drain Charge		---	3	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode forward voltage	$I_S=-1A, V_{GS}=0V$	---	-0.7	-1	V

Notes:

1. Pulse test: pulse width \leq 300 μ S, duty cycle \leq 2%
2. Static parameters are based on package level with recommended wire bonding

Typical Characteristics: ($T_A=25^\circ\text{C}$ unless otherwise noted)

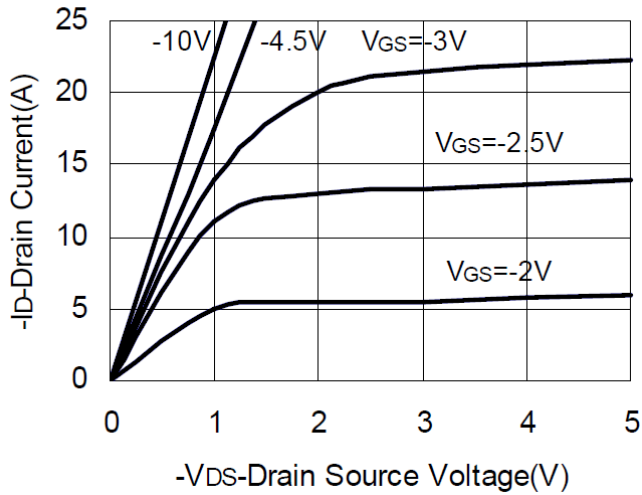


Fig1. Output Characteristics

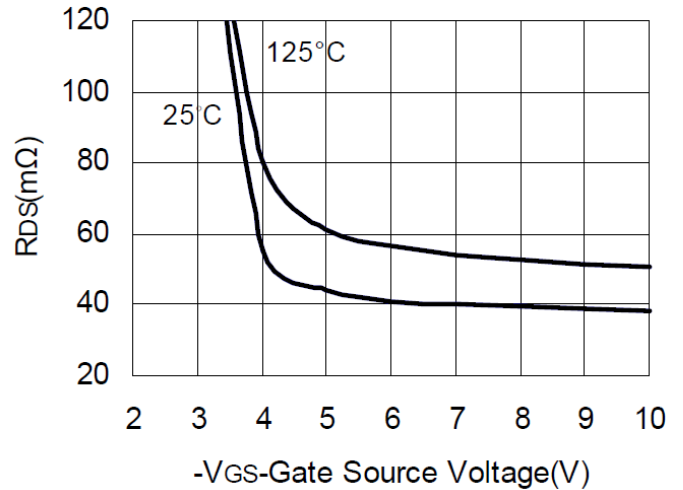


Fig2. Drain-Source On Resistance

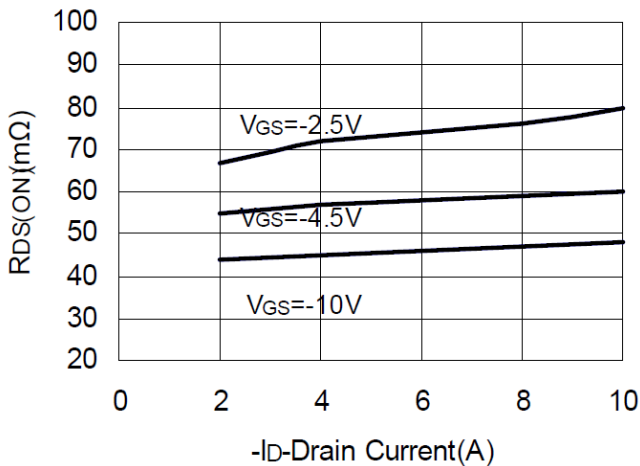


Fig3. Drain Source On Resistance

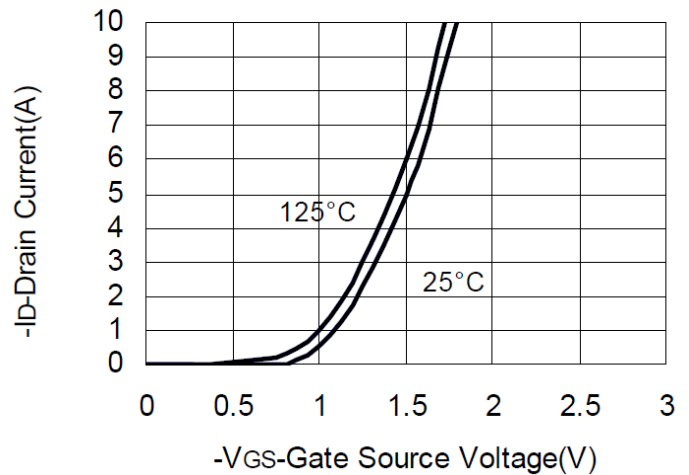


Fig4. Transfer Characteristics

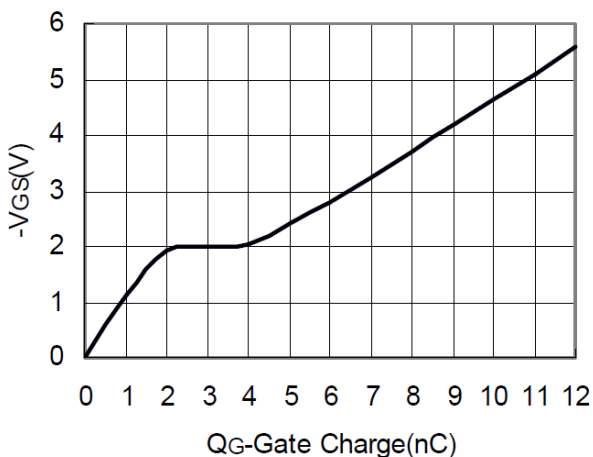


Fig5. Gate Charge

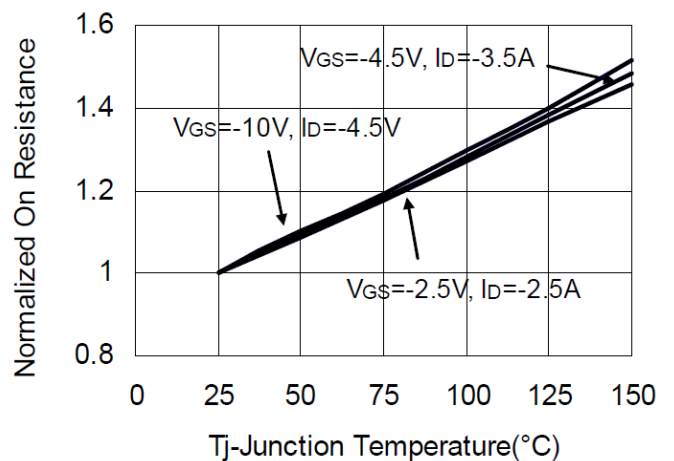


Fig6. Drain Source Resistance

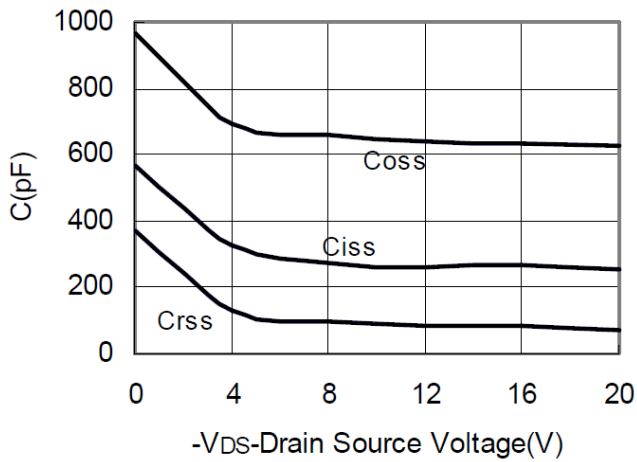


Fig7. Capacitance

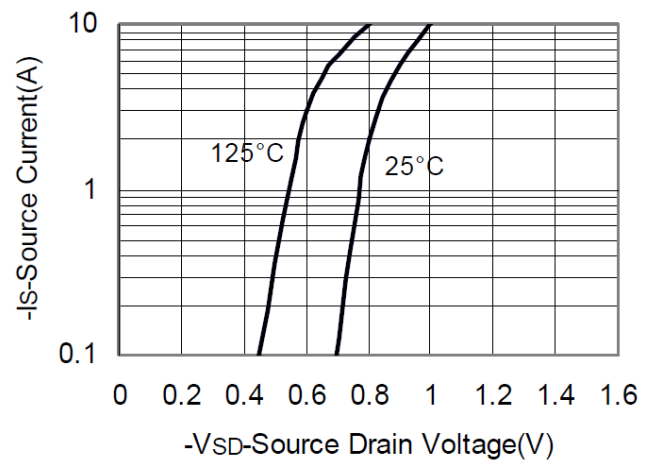


Fig8. Source Drain Diode Forward

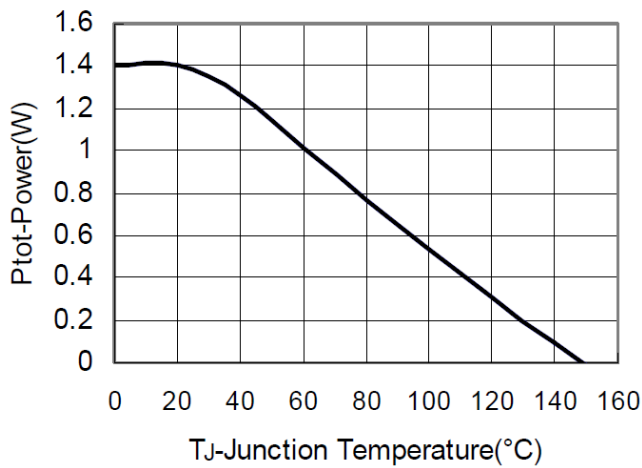


Fig9. Power Dissipation

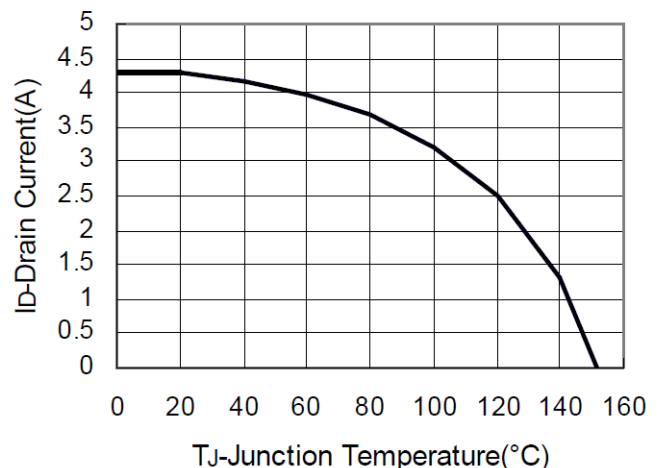


Fig10. Drain Current

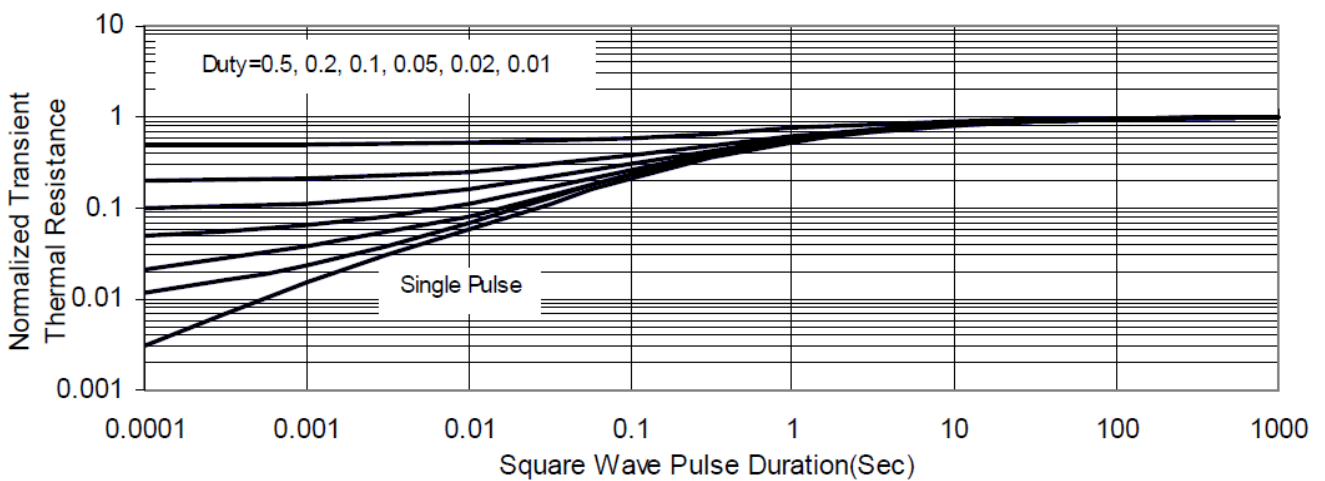
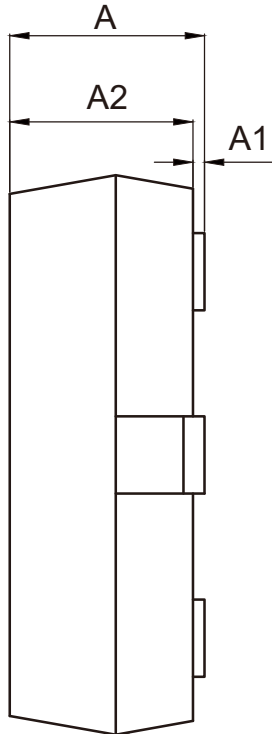
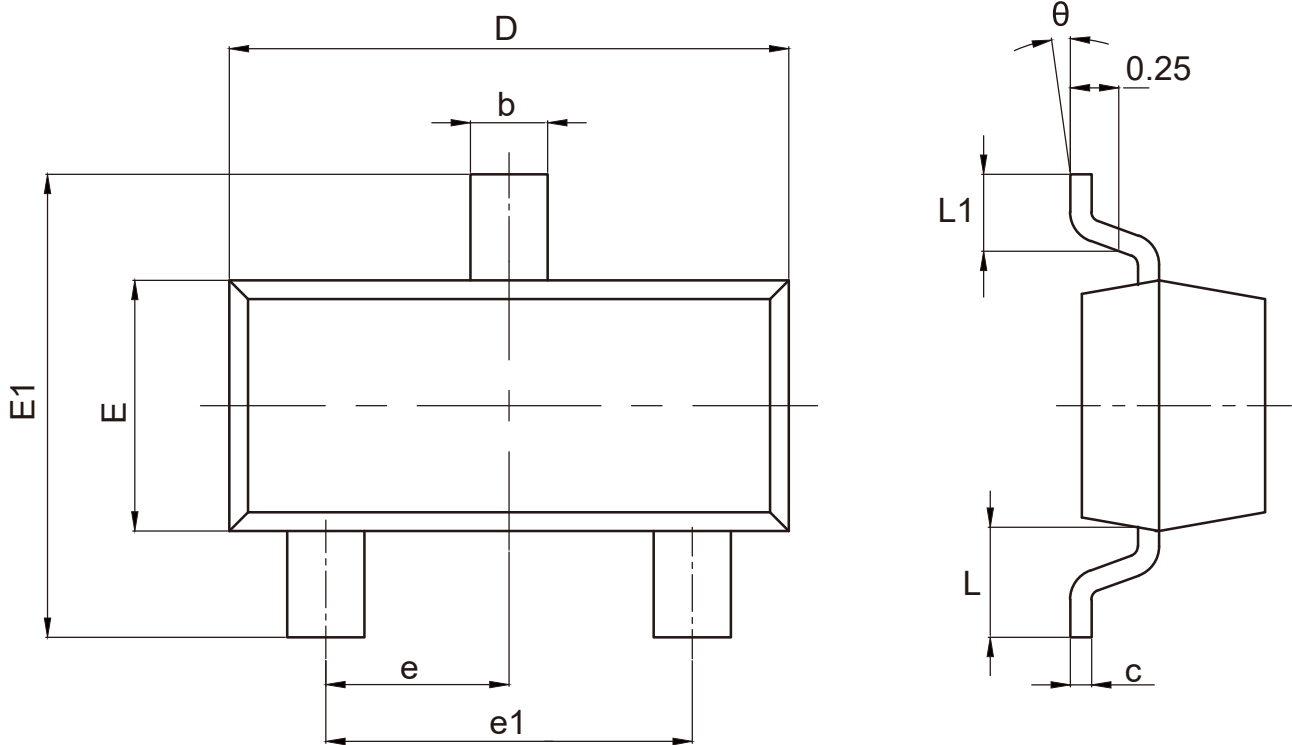


Fig11. Thermal Transient Impedance

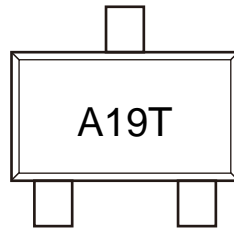
SOT-23 Package Outline Data



COMMON DIMENSIONS			
CUNITS MEASURE=MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	0.900	--	1.150
A1	0.000	--	0.100
A2	0.900	--	1.050
c	0.100	--	0.200
b	0.300	0.400	0.500
D	2.800	2.900	3.000
E	1.200	--	1.400
E1	2.250	--	2.550
e	0.950TYP		
e1	1.800	1.900	2.000
L	0.550REF		
L1	0.300	0.400	0.500
θ	0°	--	8°

Unit:mm


Marking Information:



Previous Version

Version	Date	Subjects (major changes since last revision)
2.0	2024-07-02	Release of final version

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