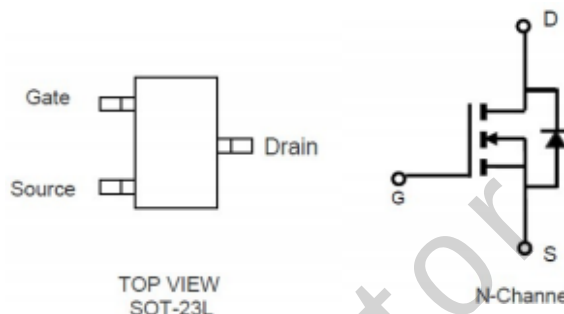


FEATURE

- ◆ 100V/ 3.0 A, $R_{DS(ON)}=220m\Omega (typ.)@V_{GS}=4.5V$
- ◆ 100V/ 2.5 A, $R_{DS(ON)}=280m\Omega (typ.)@V_{GS}=2.5V$
- ◆ Super high design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and Maximum DC current capability
- ◆ This is a Full RoHS compliance
- ◆ SOT23-3L package design



DESCRIPTION

The AO3442 is the N-Channel logic enhancement mode power field effect transistor is produced using high cell density advanced trench technology.. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application, and low in-line power loss are needed in a very small outline surface mount package.

APPLICATIONS

- ◆ Power Management in Note Book
- ◆ Portable Equipment
- ◆ Battery Powered System

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ C$ Unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate-Source Voltage		± 20	V
I_D	Continuous Drain Current ($T_J=150^\circ C$)	$V_{GS}=4.5V$	3.0	A
I_{DM}	Pulsed Drain Current		10	A
I_S	Continuous Source Current (Diode Conduction)		1	A
P_D	Power Dissipation	$T_A=25^\circ C$	1.25(SOT23-3L)	W
		$T_A=75^\circ C$	0.8(SOT23-3L)	
T_J	Operation Junction Temperature		150	$^\circ C$
T_{STG}	Storage Temperature Range		-55~+150	$^\circ C$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress rating only and functional device operation is not implied

THERMAL DATA

Symbol	Parameter	Min	Typ	Max	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient		62.5	125	$^\circ C/W$

■ **ELECTRICAL CHARACTERISTICS**($V_{DD}=2.75V$, $T_A=25^\circ C$ Unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Parameters						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	100			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1.0		2.5	V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =80V, V _{GS} =0			1	uA
		V _{DS} =80V, V _{GS} =0 T _J =85℃			5	
I _{D(ON)}	On=State Drain Current	V _{DS} ≥5V, V _{GS} =4.5V	1.5			A
R _{DS(ON)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =3.0A		220	350	mΩ
		V _{GS} =4.5V, I _D =2.5A		280	400	
G _{fs}	Forward Transconductance	V _{DS} =5V, I _D =1.0A		10		S
Source-Drain Diode						
V _{SD}	Diode Forward Voltage	I _S =1.0A, V _{GS} =0V		0.8	1.0	V
Dynamic Parameters						
Q _g	Total Gate Charge	V _{DS} =50V V _{GS} =4.5V I _D =1.0A		2.1	3.9	nC
Q _{gs}	Gate-Source Charge			0.6		
Q _{gd}	Gate-Drain Charge			0.8		
C _{iSS}	Input Capacitance	V _{DS} =50V V _{GS} =0V f=1MHz		295		pF
C _{oss}	Output Capacitance			40		
C _{rSS}	Reverse Transfer Capacitance			15		
T _{d(on)}	Turn-On Time	V _{DS} =50V R _L =10Ω I _D =1A V _{GEN} =4.5V R _G =6Ω		3.6		nS
T _r				3.5		
T _{d(off)}	Turn-Off Time			32		
T _f				3		

Note: 1. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

2.Static parameters are based on package level with recommended wire bonding

■ **TYPICAL CHARACTERISTICS** (25 °C Unless Note)

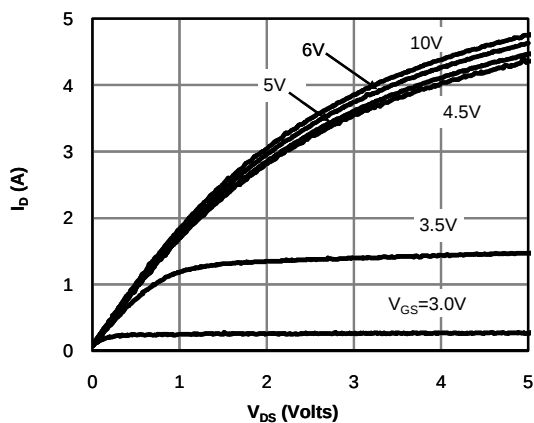


Fig 1: On-Region Characteristics (Note E)

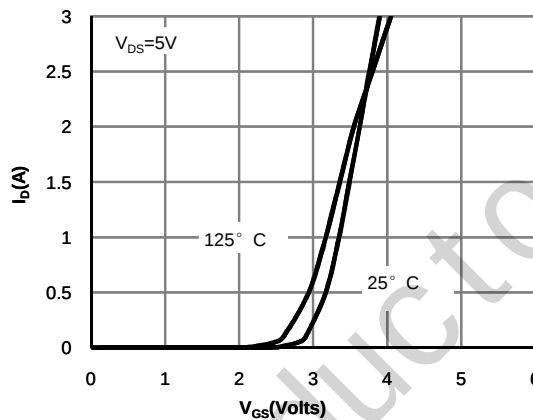


Figure 2: Transfer Characteristics (Note E)

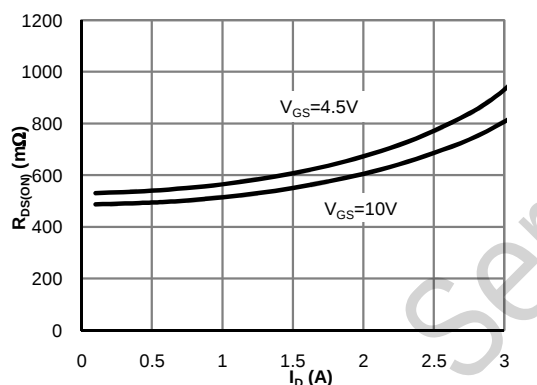


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

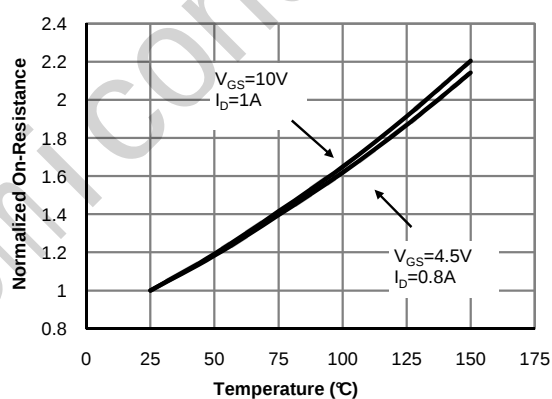


Figure 4: On-Resistance vs. Junction Temperature (Note E)

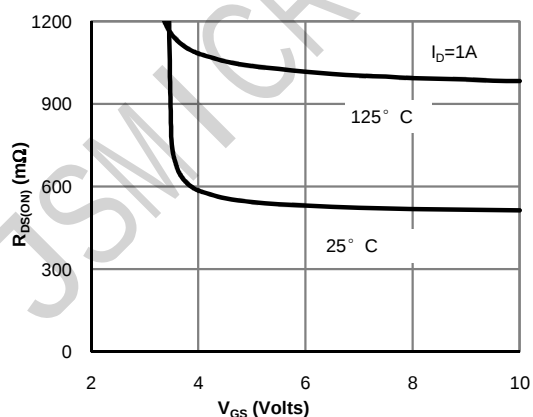


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

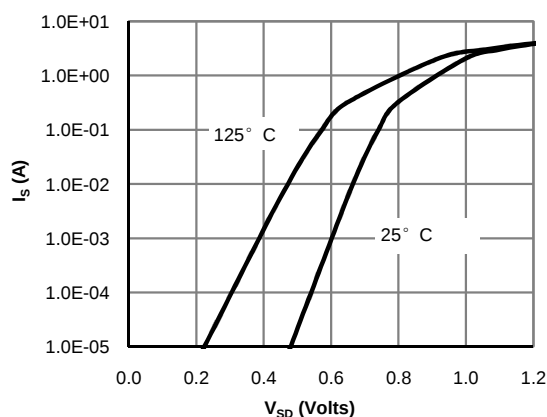
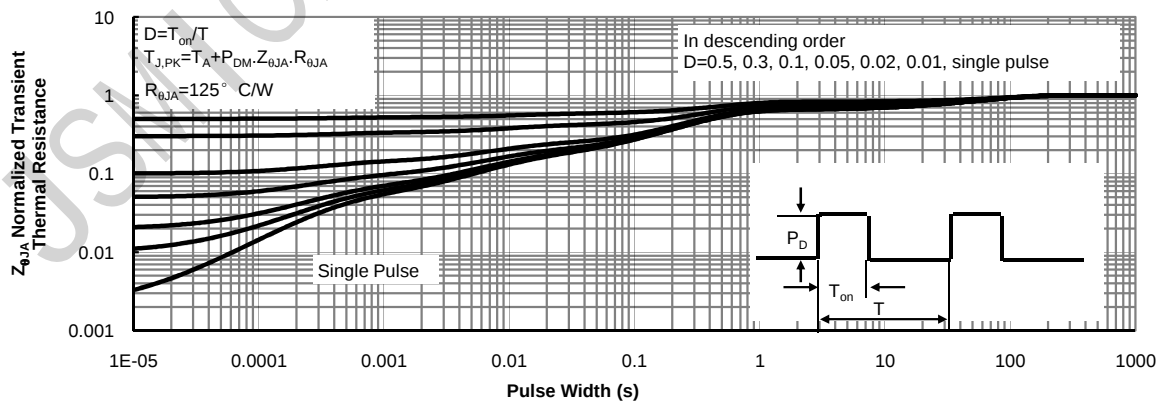
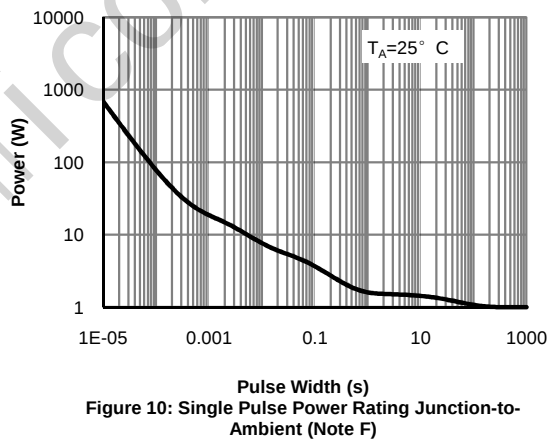
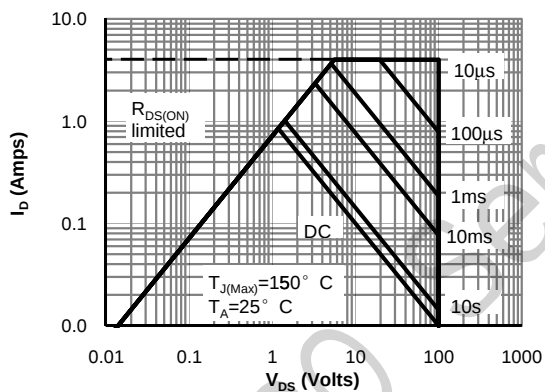
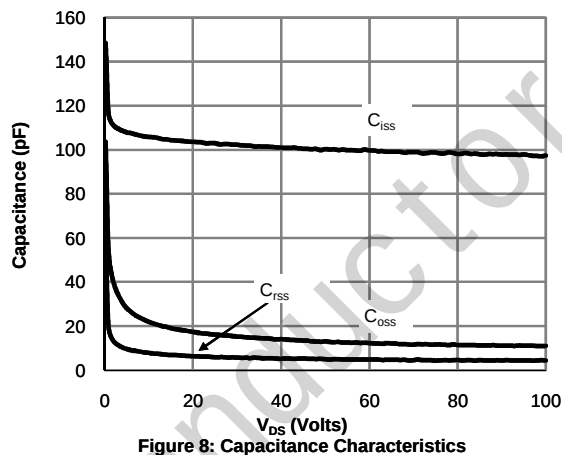
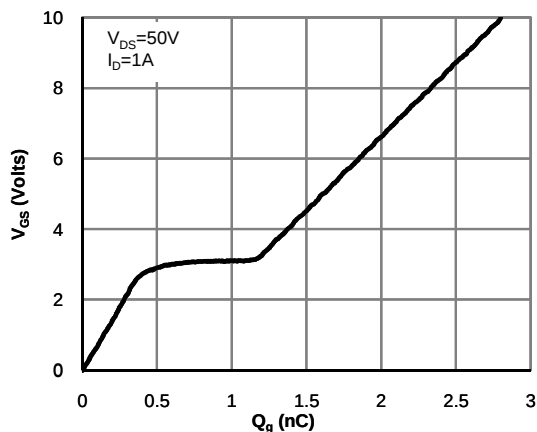
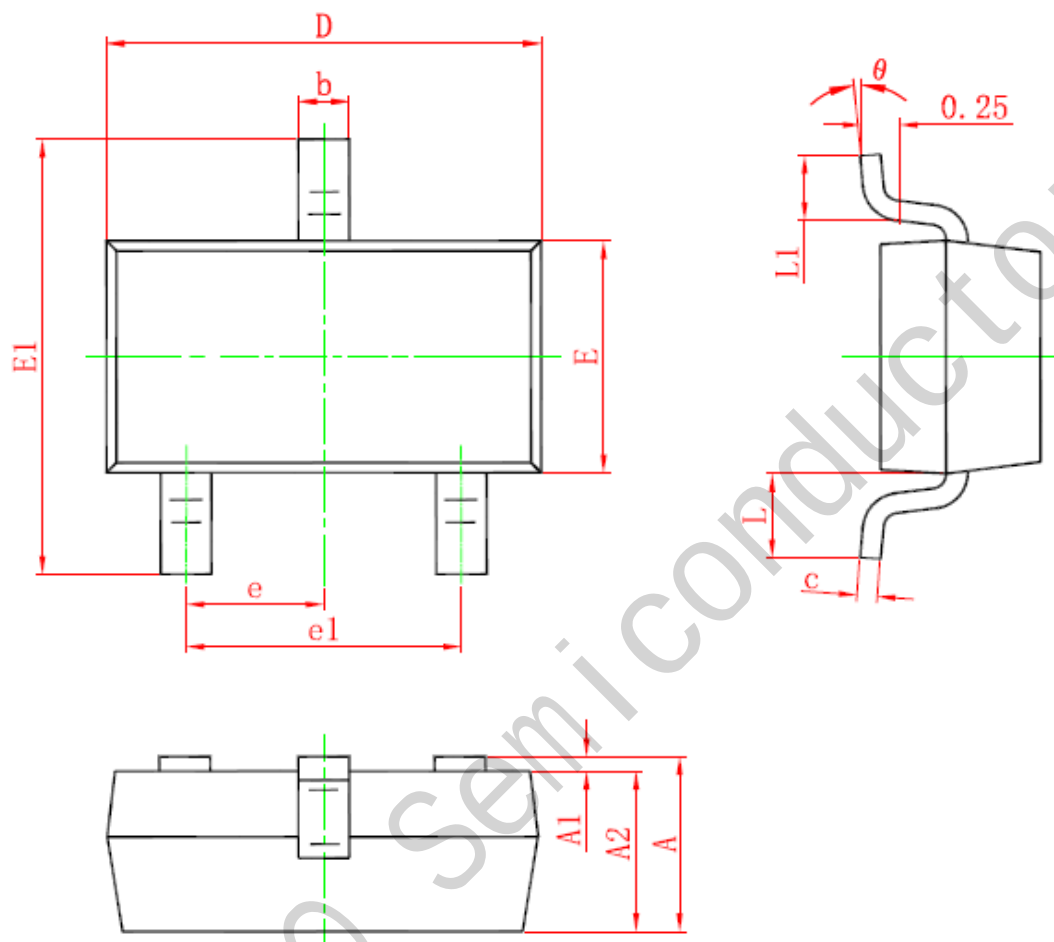


Figure 6: Body-Diode Characteristics (Note E)

■ TYPICAL CHARACTERISTICS (continuous)



■ SOT23 PACKAGE OUTLINE DIMENSIONS



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°