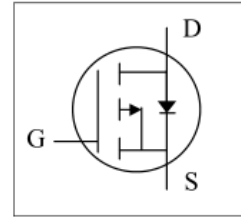


**-40V P-Channel Enhancement Mode MOSFET**

**Description**

The AO4443 uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.



**General Features**

$V_{DS} = -40V$   $I_D = -8 A$

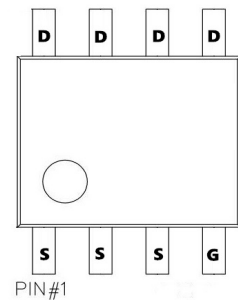
$R_{DS(ON)} < 37m\Omega @ V_{GS}=10V$

**Application**

Battery protection

Load switch

Uninterruptible power supply



**Absolute Maximum Ratings ( $T_A=25^\circ C$ )**

Symbol	Parameter	Value	Unit
$V_{DS}$	Drain-Source Voltage ( $V_{GS}=0V$ )	-40	V
$V_{GS}$	Gate-Source Voltage ( $V_{DS}=0V$ )	$\pm 20$	V
$I_D$	Drain Current-Continuous( $T_c=25^\circ C$ )	-20	A
	Drain Current-Continuous( $T_c=100^\circ C$ )	-8	A
$I_{DM (pluse)}$	(Note 1) Drain Current-Continuous@ Current-Pulsed	-20	A
$P_D$	Maximum Power Dissipation( $T_c=25^\circ C$ )	37.5	W
	Maximum Power Dissipation( $T_c=100^\circ C$ )	19	W
$T_J, T_{STG}$	Operating Junction and Storage Temperature Range	-55 To 175	$^\circ C$
$R_{JC}$	Thermal Resistance, Junction-to-Case	4	$^\circ C/W$

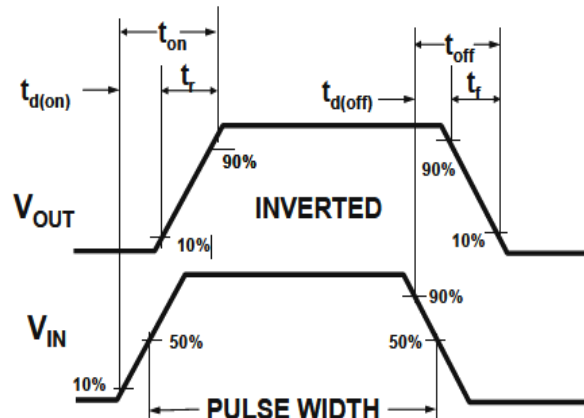
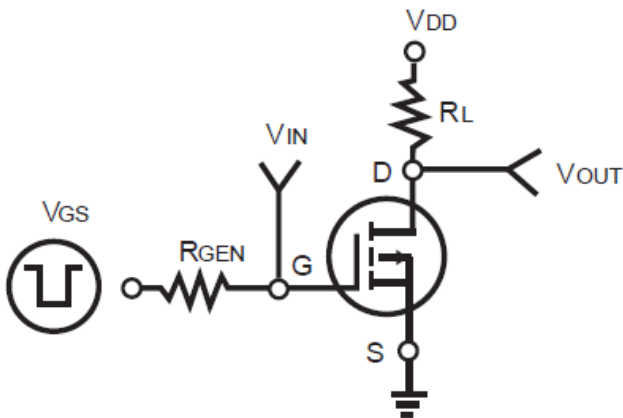
**-40V P-Channel Enhancement Mode MOSFET**

**Electrical Characteristics (TA=25°C unless otherwise noted)**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-40			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =-32V, V <sub>GS</sub> =0V			-1	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1	-2	-3	V
g <sub>Fs</sub>	Forward Transconductance	V <sub>DS</sub> =-5V, I <sub>D</sub> =-10A		25		S
R <sub>DS(on)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =-10V, I <sub>D</sub> =-20A		35	46	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-10A		42	52	mΩ
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =-25V, V <sub>GS</sub> =0V, f=1.0MHz		840		pF
C <sub>oss</sub>	Output Capacitance			92		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			60		pF
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-20V, R <sub>L</sub> =1.6 Ω, R <sub>GEN</sub> =3 Ω		5		nS
t <sub>r</sub>	Turn-on Rise Time			12		nS
t <sub>d(off)</sub>	Turn-Off Delay Time			20		nS
t <sub>f</sub>	Turn-Off Fall Time			4.5		nS
Q <sub>g</sub>	Total Gate Charge	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-20V, I <sub>D</sub> =-15A		20		nC
Q <sub>gs</sub>	Gate-Source Charge			2.5		nC
Q <sub>gd</sub>	Gate-Drain Charge			4.5		nC
I <sub>SD</sub>	Source-Drain Current(Body Diode)				-20	A
V <sub>SD</sub>	Forward on Voltage	V <sub>GS</sub> =0V, I <sub>S</sub> =-20A			-1.2	V

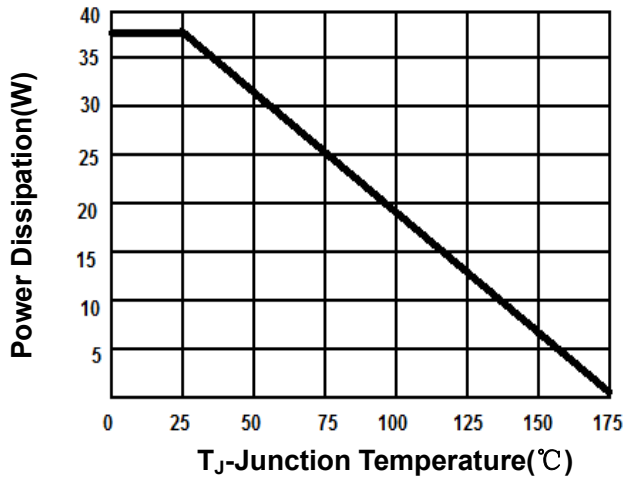
Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature

**Switch Time Test Circuit and Switching Waveforms:**

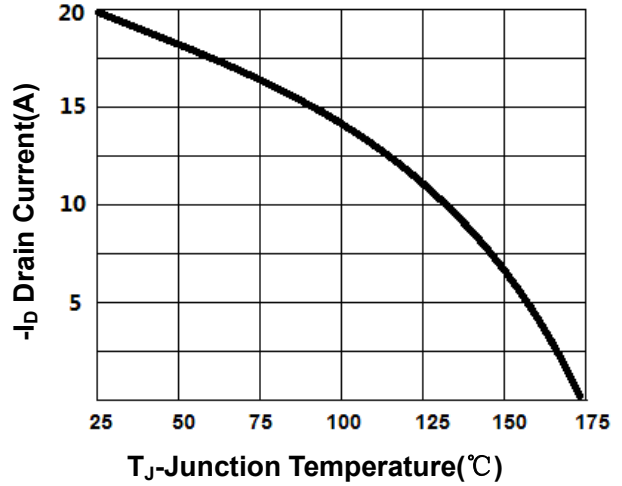


**TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS (Curves)**

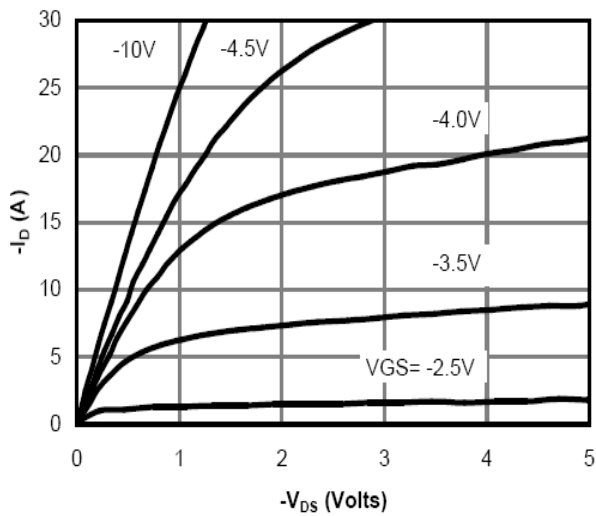
**Figure1. Power Dissipation**



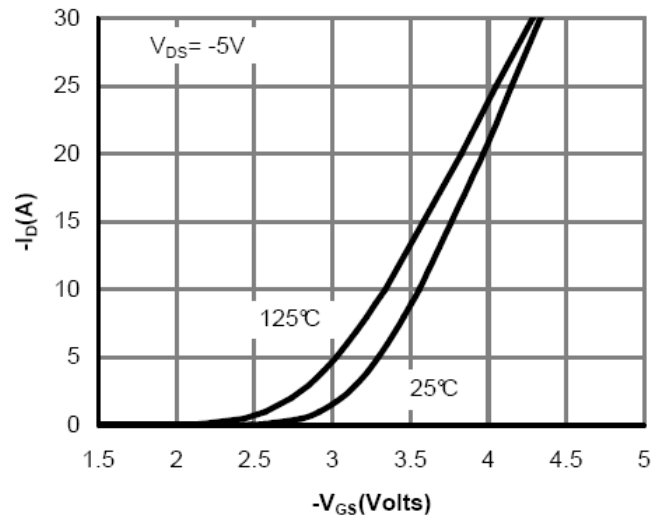
**Figure2. Drain Current**



**Figure3. Output Characteristics**

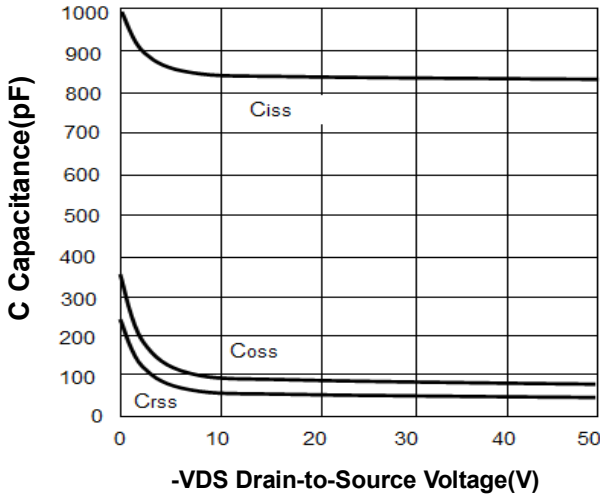


**Figure4. Transfer Characteristics**

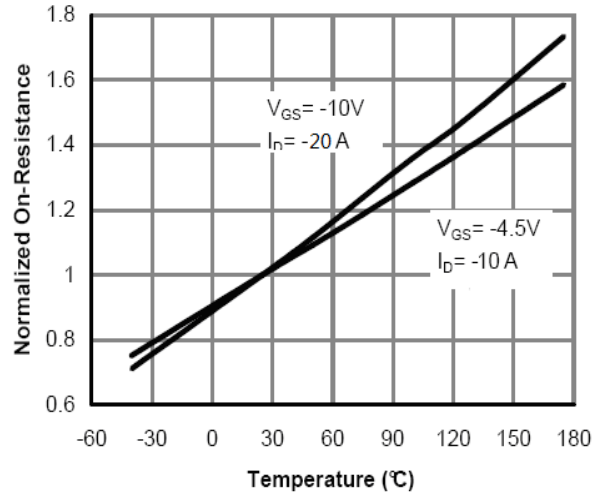


**-40V P-Channel Enhancement Mode MOSFET**

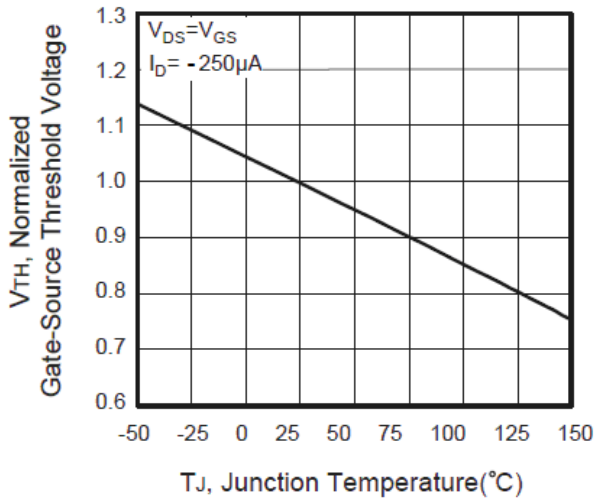
**Figure5. Capacitance**



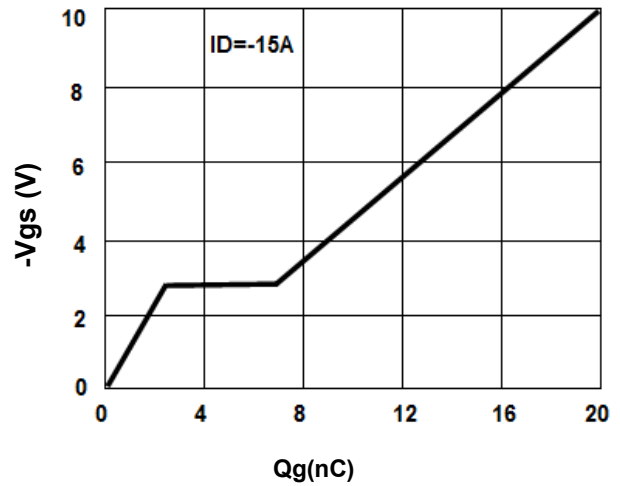
**Figure6.  $R_{DS(ON)}$  vs Junction Temperature**



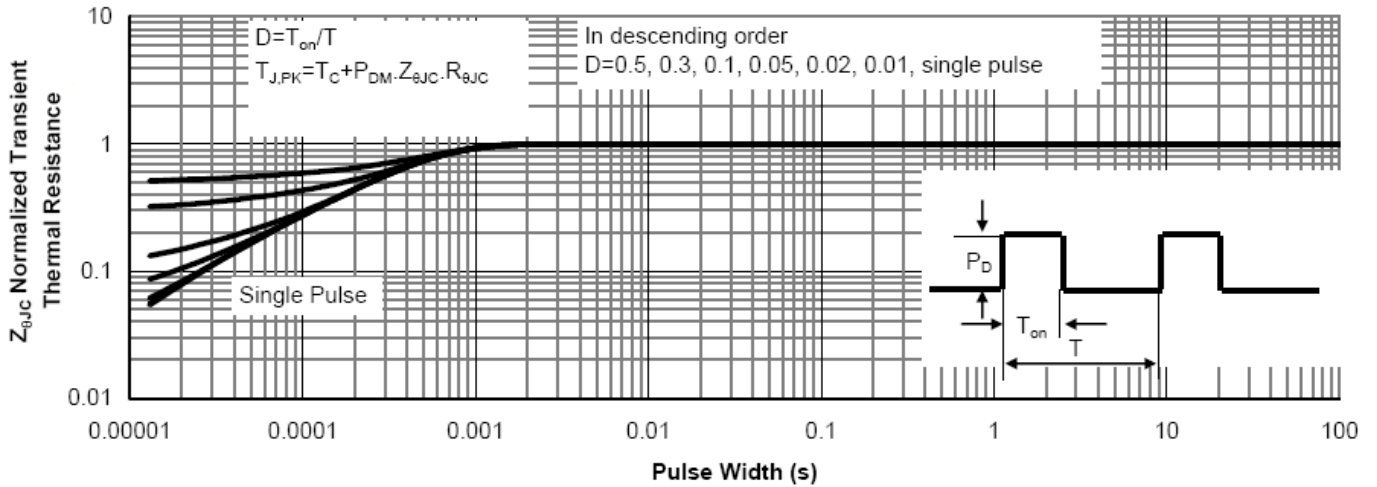
**Figure7.  $V_{GS(th)}$  vs Junction Temperature**



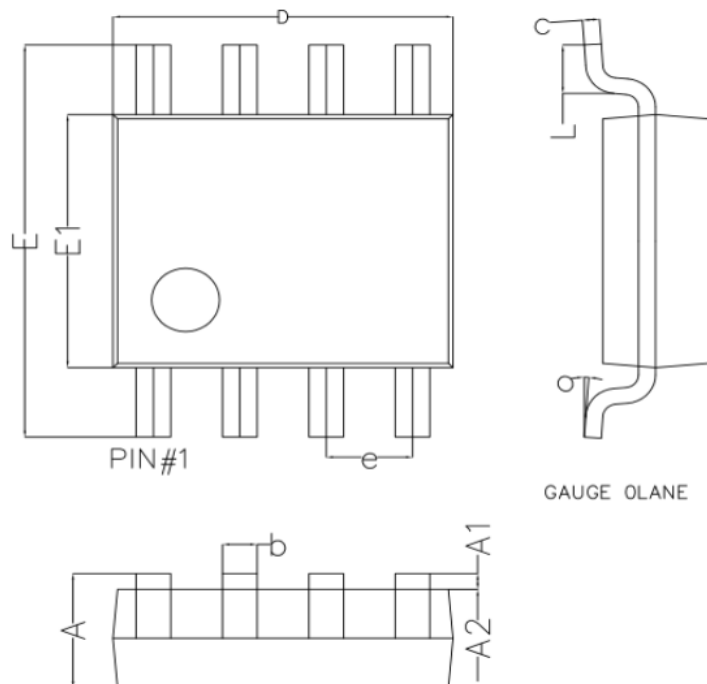
**Figure8. Gate Charge Waveforms**



**Figure9. Normalized Maximum Transient Thermal Impedance**

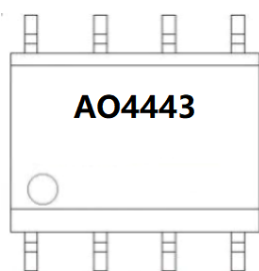


**SOP8 Package outline**



Symbol	Dim in mm		
	Min	Nor	Max
A	1.350	1.550	1.750
A1	0.100	0.175	0.250
A2	1.350	1.450	1.550
b	0.330	0.420	0.510
c	0.170	0.210	0.250
D	4.800	4.900	5.000
e	1.270 (BSC)		
E	5.800	6.000	6.200
E1	3.800	3.900	4.000
L	0.400	0.835	1.2700
o	0°	4°	8°

**Marking**



("xxxx"代表年份周期)

**Ordering information**

Order code	Package	Baseqty	Deliverymode
AO4443	SOP-8	3000	Tape and reel