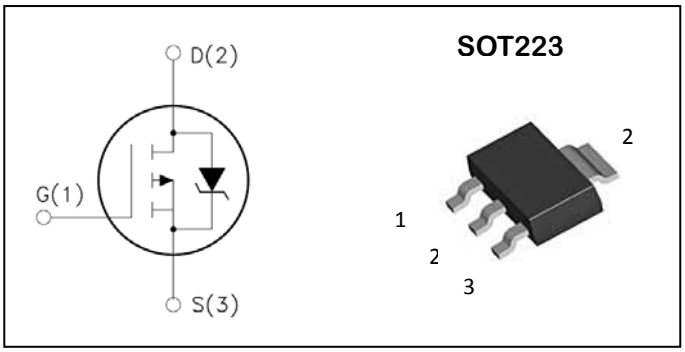
P-Channel Logic Level Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(ON)}$ (mΩ)
-60V	-2.3A	180mΩ



Features:

- Excellent Cdv/dt effect decline
- Super Low Gate Charge
- 100% EAS Guaranteed
- Advanced Trench technology
- Lead-Free,RoHS Compliant

Description:

The ADM2P06W is the high cell density trenchedP-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.The ADM2P06W meets the RoHS and Green Product requirement with full function reliability approved.

Absolute Maximum Ratings (T_A = 25°C unless otherwise specifed)

Symbol	Parameter		Ratings	Unit
Common Ratings				
V_{DSS}	Drain-Source Voltage		-60	V
V_{GSS}	Gate-Source Voltage		±20	
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	°C
I_S	Diode Continuous Forward Current (1,4)	T_C =25°C	-2.3	A
Mounted on Large Heat Sink				
I_{DM}	300μs Pulse Drain Current Tested (2)	T_C=25°C	-12	A
I_D	Continuous Drain Current (1)	T_C=25°C	-2.3	A
		T_C=70°C	-1.8	A
P_D	Maximum Power Dissipation (3)	T_A=25°C	1.5	W

Thermal Characteristics

Symbol	Parameter	Ratings	Unit
R_{thJC}	Thermal resistance junction-case max (1)	85	°C/W
R_{thJA}	Thermal resistance junction-ambient max (1)	48	°C/W

Electrical Characteristics (TA=25°C Unless Otherwise Noted)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
On/off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=-250uA	-60	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-48V,V_{GS}=0V , T_J=25°C	--	--	1	uA
		V_{DS}=-48V,V_{GS}=0V , T_J=55°C	--	--	5	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=-250A	-1.5	-2.0	-2.5	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	--	--	±100	nA
$R_{DS(ON)}$	Drain-SourceOn-stateResistance (2)	V_{GS}= -10V, I_{DS}=-2A	--	140	180	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}= -15V, Frequency=1MHz	--	428	600	pF
C_{oss}	Output Capacitance		--	39	55	
C_{rss}	Reverse Transfer Capacitance		--	26	36.4	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	V_{DS}=-30V, I_D= -2A, V_{GS}= -10V, R_{GEN}=3.3Ω	--	4.1	8.2	ns
t_r	Turn-on Rise Time		--	2.1	38	
$t_{d(OFF)}$	Turn-off Delay Time		--	20.3	40.6	
t_f	Turn-off Fall Time		--	21	42	
Q_g	Total Gate Charge	V_{DS}=-48V, V_{GS}= -10V, I_{DS}=-2A	--	8.3	11.6	nC
Q_{gs}	Gate-Source Charge		--	1.8	2.52	
Q_{gd}	Gate-Drain Charge		--	1.6	2.25	
Diode Characteristics						
V_{SD}	Diode Forward Voltage (2)	I_{SD} = -1A, V_{GS} = 0	--	--	-1.2	V

NOTES:

1.The data tested by surface mounted on a 1 $inch^2$ FR-4 board with 2OZ copper.

2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

3.The power dissipation is limited by 150℃ junction temperature

4.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Performance Characteristics

Figure 1: Normalized R_{DSON} v.s T_J

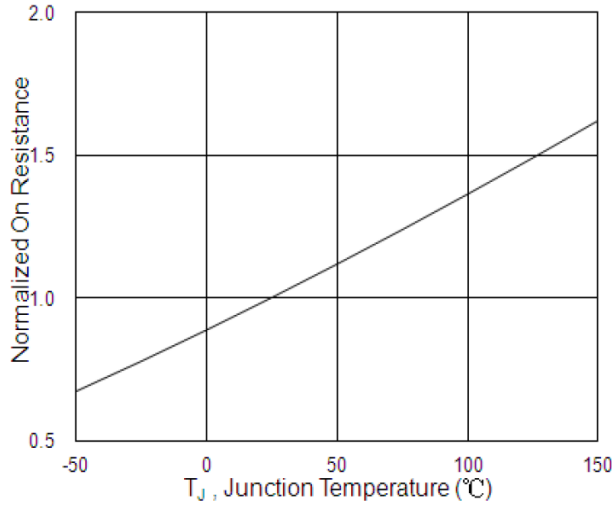


Figure 2: Gate-Charge Characteristics

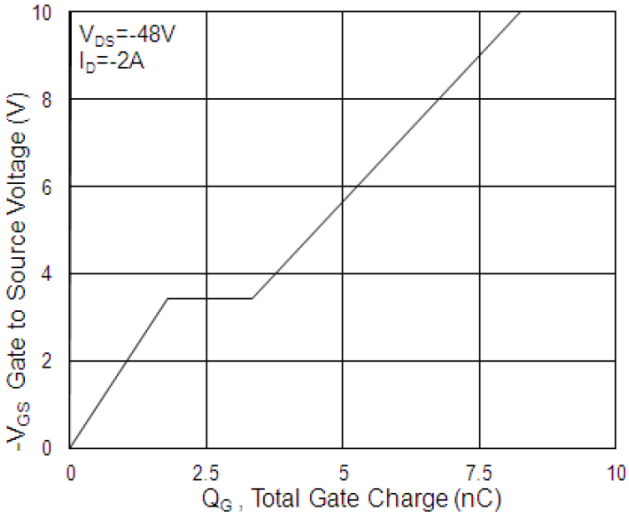


Figure 3: On-Resistance v.s Gate-Source

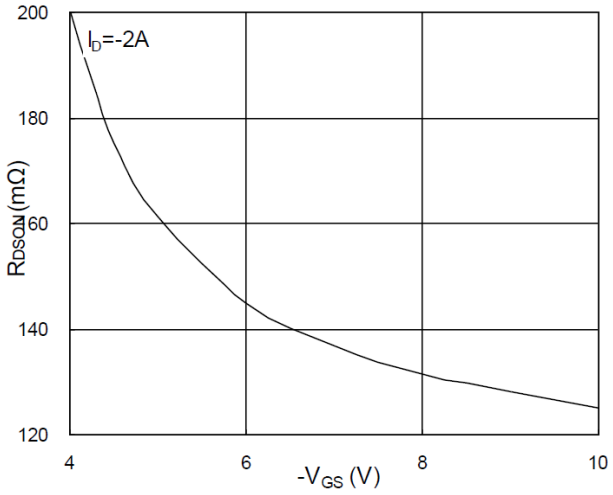


Figure 4: Typical Output Characteristics

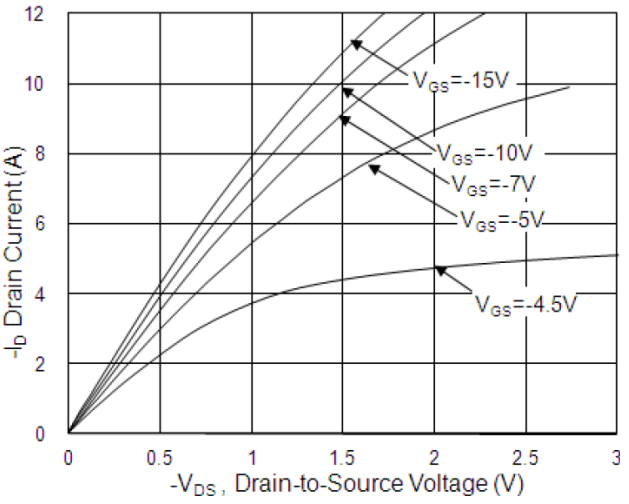


Figure 5: Normalized $V_{GS(th)}$ v.s T_J

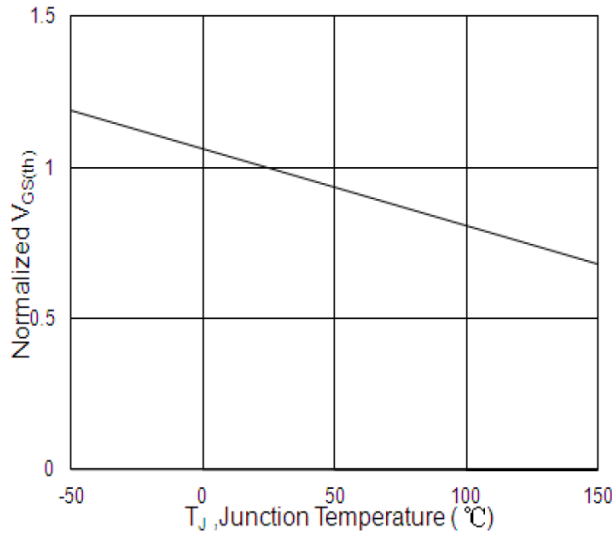


Figure 6: Forward Characteristics Of Reverse

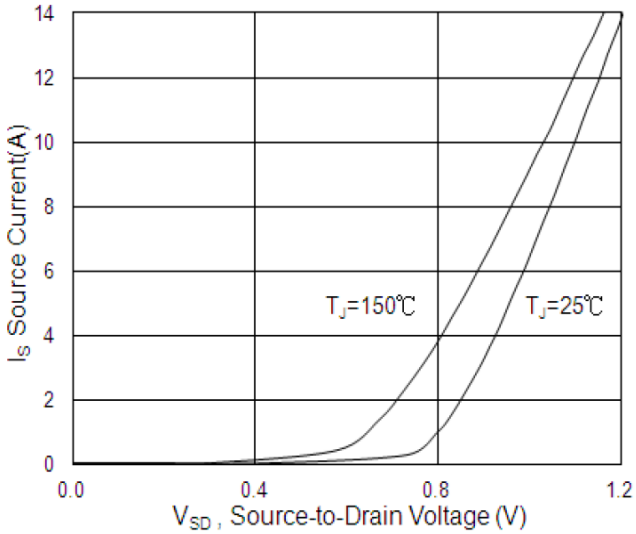


Figure 7: Safe Operating Area

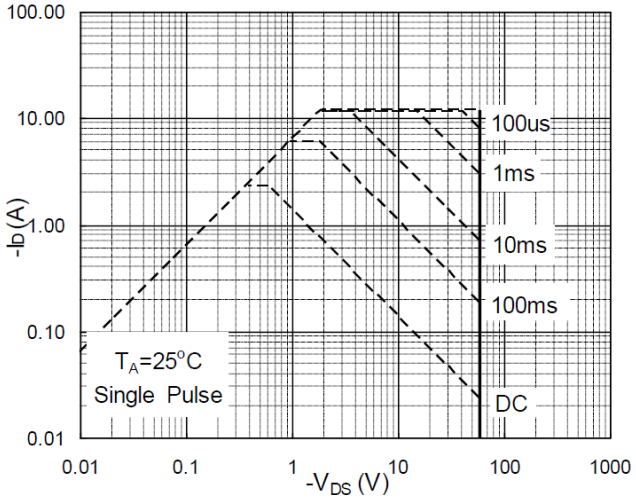


Figure 8: Capacitance

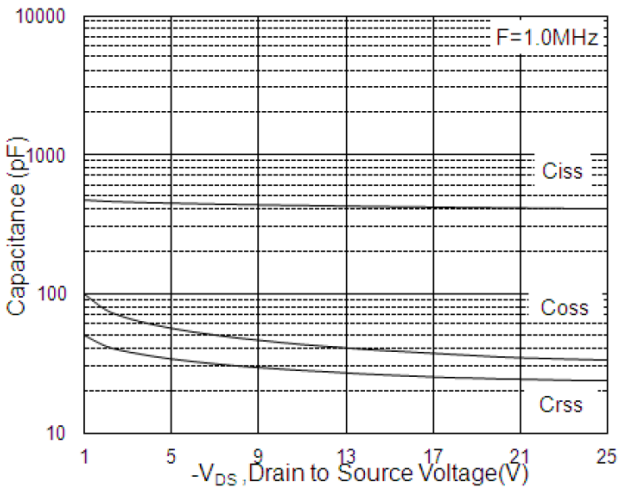
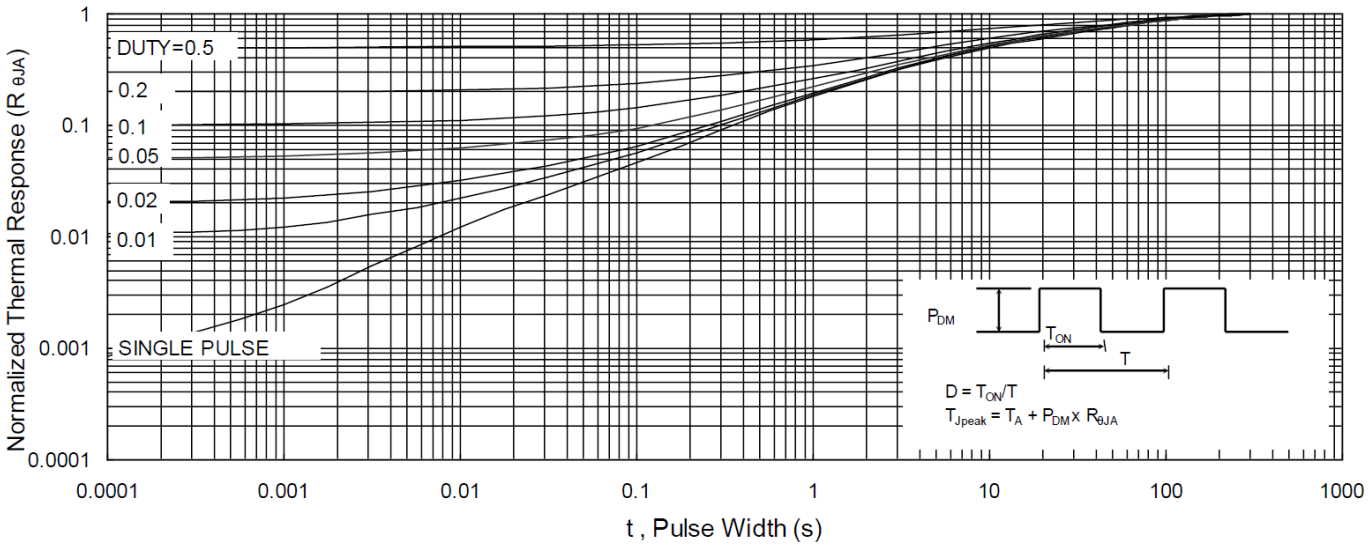
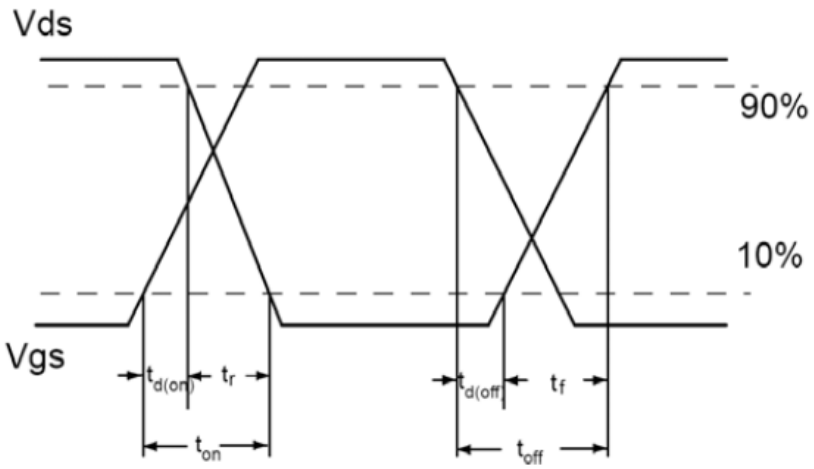


Figure 9: Normalized Maximum Transient Thermal Impedance

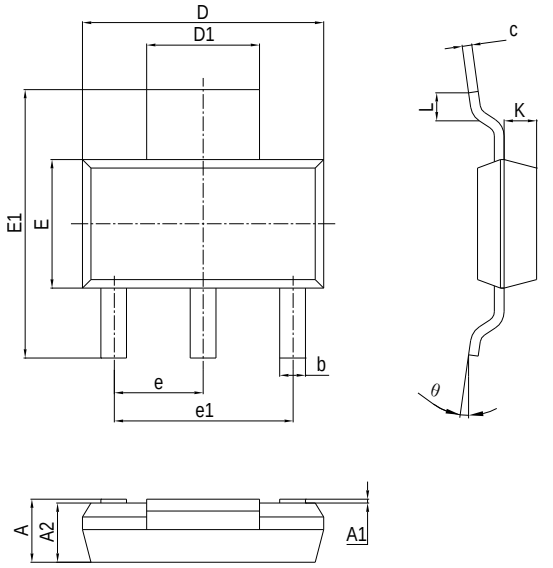


Switch Waveforms:



PACKAGE MECHANICAL DATA

SOT-223 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.520	1.800	0.060	0.071
A1	0.000	0.100	0.000	0.004
A2	1.500	1.700	0.059	0.067
c	0.250	0.350	0.010	0.014
D	6.200	6.400	0.244	0.252
D1	2.900	3.100	0.114	0.122
E	3.300	3.700	0.130	0.146
E1	6.830	7.070	0.269	0.278
e	2.300 TYP		0.091 TYP	
e1	4.500	4.700	0.177	0.185
L	0.900	1.150	0.035	0.045
θ	0°	10°	0°	10°
b	0.660	0.820	0.026	0.032
K	0.890	0.91	0.035	0.036