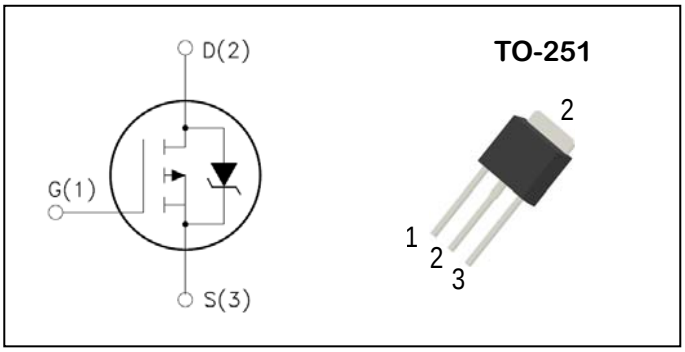
P-Channel Logic Level Enhancement Mode Field Effect Transistor



PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(ON)}$ (mΩ)
-60V	-15A	90mΩ

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

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	TC=25°C	-15	A
Mounted on Large Heat Sink				
I_{DM}	300μs Pulse Drain Current Tested(1)	T_C=25°C	-50	A
I_D	Continuous Drain Current	T_C=25°C	-15	A
		T_C=100°C	-10	A
P_D	Maximum Power Dissipation	T_C=25°C	41	W
		T_C=100°C	16	W

Thermal Characteristics

Symbol	Parameter	Ratings	Unit
R_{thJC}	Thermal resistance junction-case max	3	°C/W
R_{thJA}	Thermal resistance junction-ambient max	120	°C/W

1. Pulse width limited by maximum junction temperature.

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	--	--	1	uA
		V_{DS}=-40V,V_{GS}=0V T_J=125°C	--	--	10	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=-250uA	-1	-1.7	-3	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	--	--	±250	nA
$R_{DS(ON)}$	Drain-SourceOn-stateResistance(2)	V_{GS}= -10V, I_{DS}=-7A	--	42	55	mΩ
		V_{GS}= -4.5V, I_{DS}=-6A	--	100	135	
g_{FS}	Forward transconductance(2)	V_{DS}=- 10V, I_{DS}=-7A	--	9	--	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS}=0V,	--	1130	--	pF
C_{oss}	Output Capacitance	V_{DS}= -25V,	--	122	--	
C_{rss}	Reverse Transfer Capacitance	Frequency=1.0MHz	--	75	--	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time(1)	V_{DS} =-20V,	--	7	--	ns
t_r	Turn-on Rise Time(1)	I_D= -1A, V_{GS}= -10V,	--	10	--	
$t_{d(OFF)}$	Turn-off Delay Time(1)	R_{GEN}=6Ω	--	19	--	
t_f	Turn-off Fall Time(1)		--	12	--	
Q_g	Total Gate Charge(1)	V_{DS}=0.5V, V_{GS}= -10V,	--	12.5	--	nC
Q_{gs}	Gate-Source Charge(1)	I_{DS}=-7A	--	1.8	--	
Q_{gd}	Gate-Drain Charge(1)		--	3.7	--	
Diode Characteristics						
V_{SD}	Diode Forward Voltage(2)	I_{SD} = -7A, V_{GS} = 0	--	--	-1	V
t_{rr}	Reverse Recovery Time	I_{SD}=-7A, dI_{SD}/dt=100A/μs	--	37	--	ns
q_{rr}	Reverse Recovery Charge		--	53	--	nC

NOTES:

1. Independent of operating temperature.
2. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%

Typical Performance Characteristics

Figure 1: On-Region Characteristics

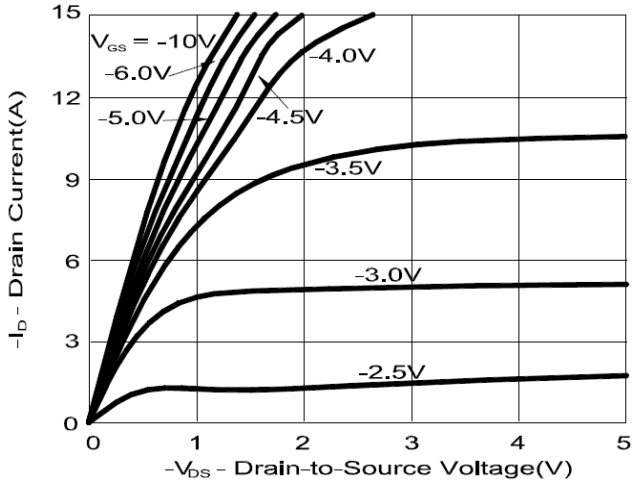


Figure 2: Transfer Characteristics

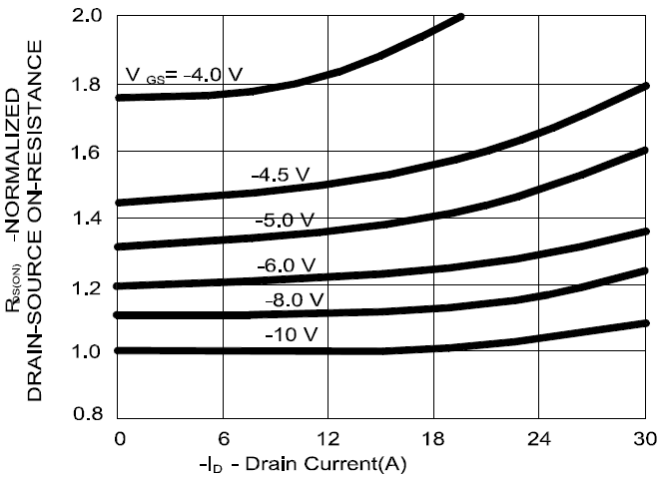


Figure 3: Transfer Characteristics

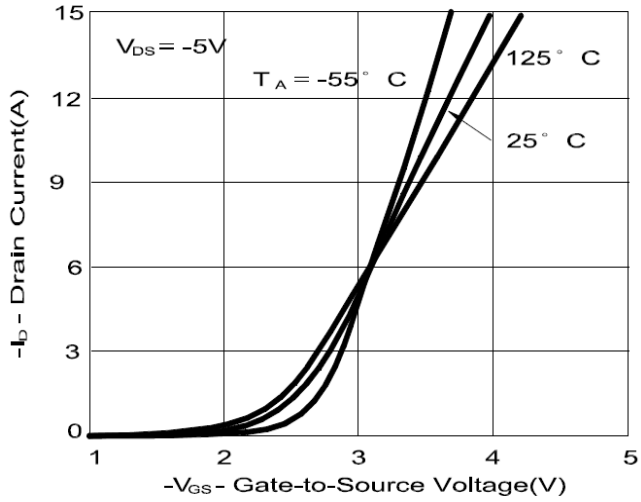


Figure 4: On-Resistance with Gate-to-source Voltage

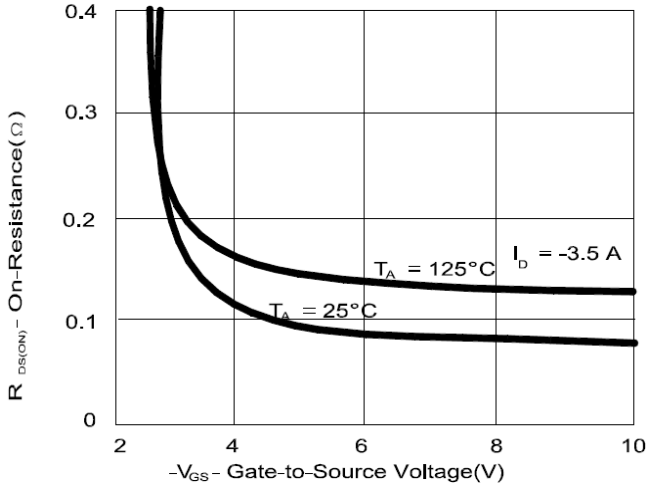


Figure 5: Capacitance Characteristics

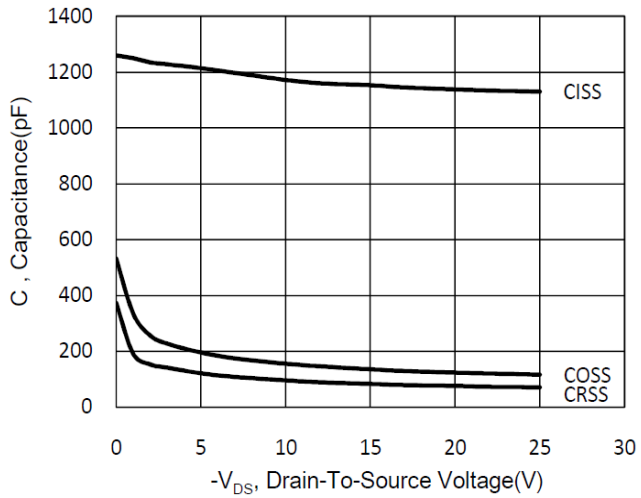


Figure 6: Gate Charge Characteristics

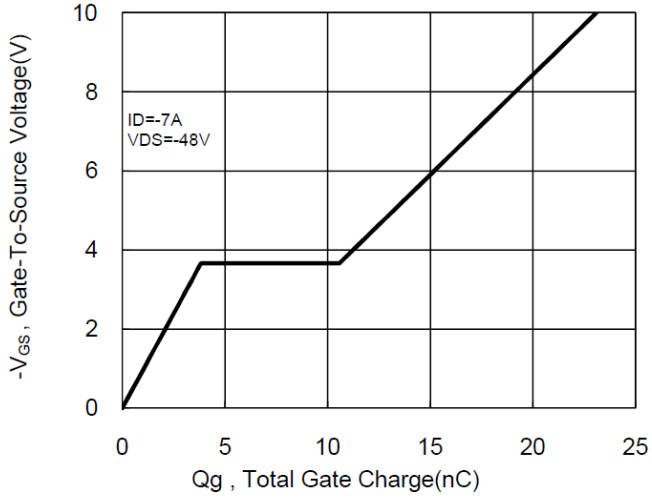


Figure 7: On-Resistance Variation vs.Temperature

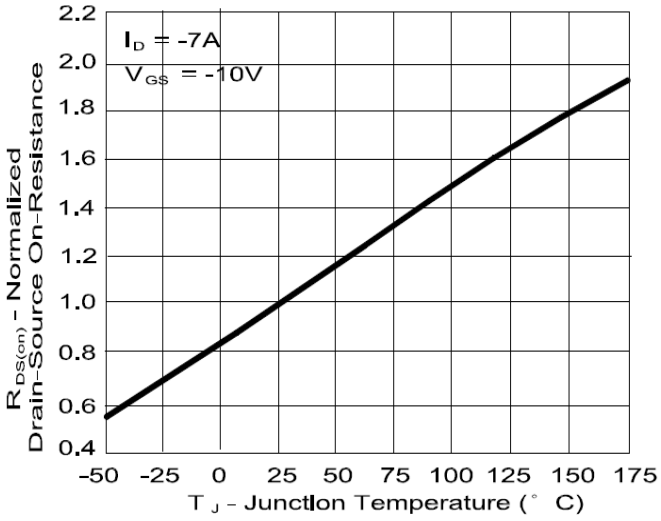


Figure 8: Body Diode Forward Voltage

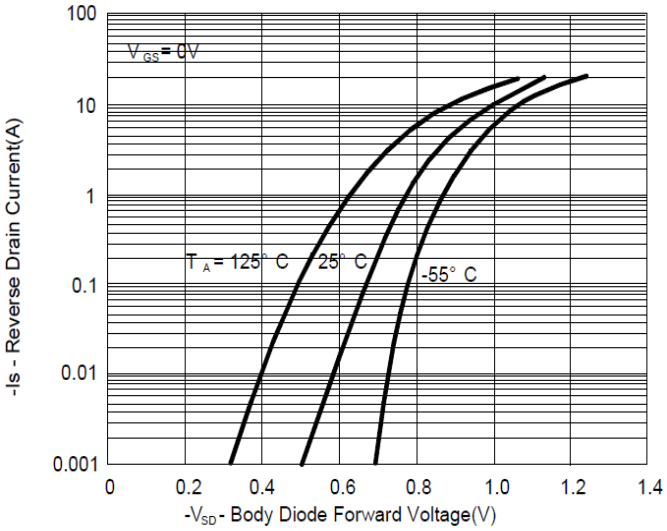


Figure 9: Maximum Safe Operating Area

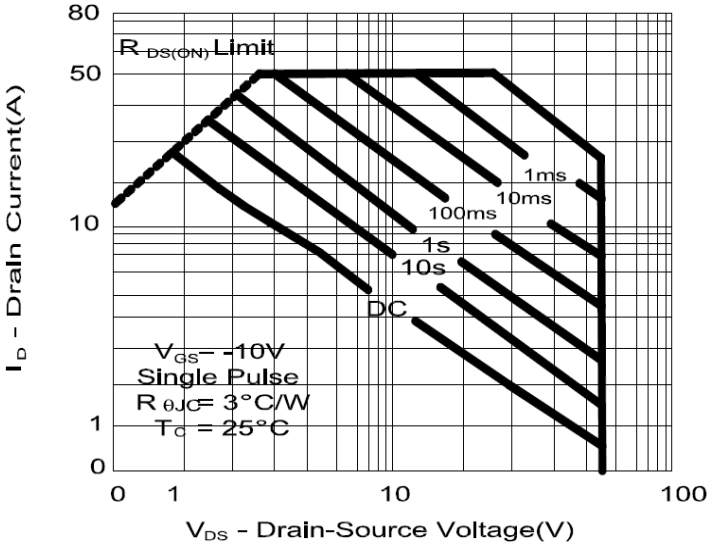


Figure 10: Pulse Maximum Power Disspation

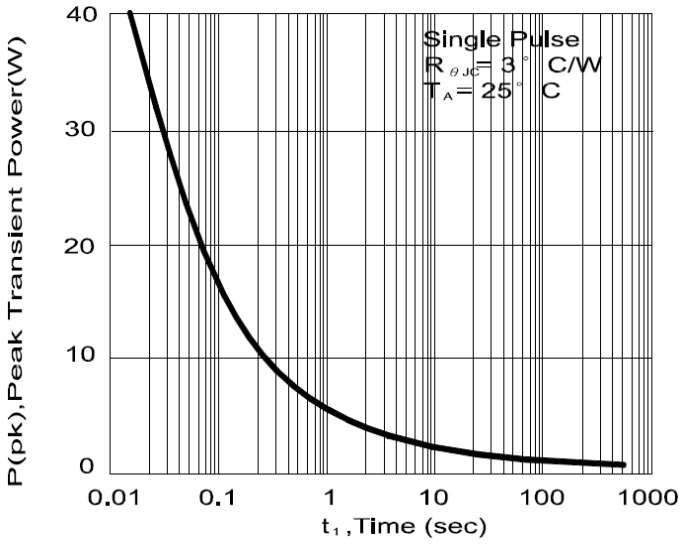
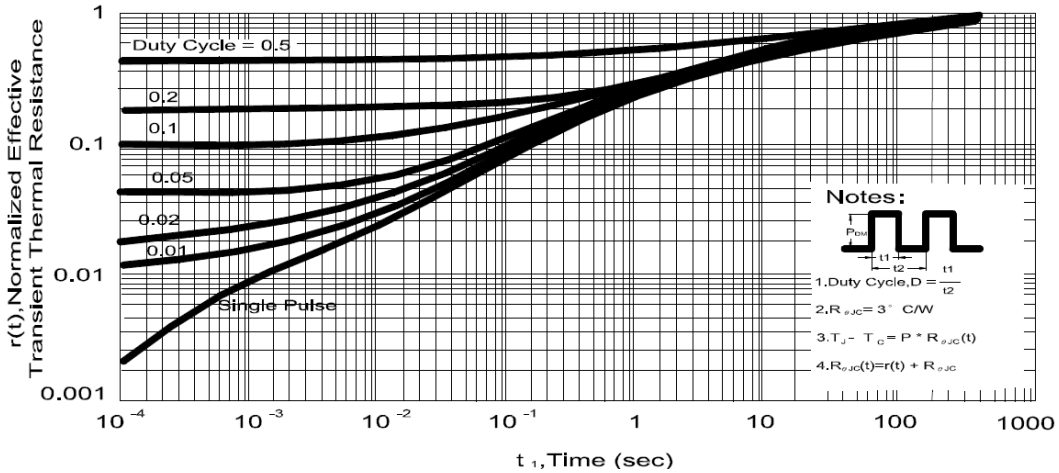
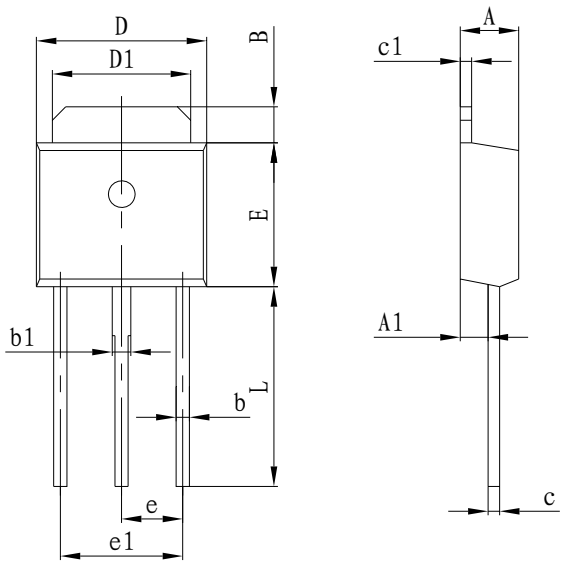


Figure 11. Transient Thermal Response Curve



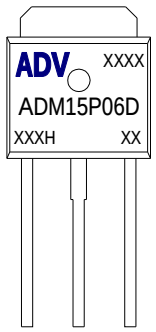
PACKAGE MECHANICAL DATA

TO-251 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	0.900	1.100	0.035	0.043
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.620	0.017	0.024
c1	0.480	0.620	0.019	0.024
D	6.350	6.700	0.252	0.264
D1	5.100	5.400	0.200	0.213
E	6.000	6.200	0.236	0.244
e	2.300TYP		0.091TYP	
e1	4.500	4.700	0.177	0.185
L	8.900	9.400	0.350	0.370

Making Diagram



ADV:Logo

ADM15P06D:Part number

X:Internal control code

H:Halogen Free

AD M 15 P 06 D

ADVANCED

Mosfet

Current:15=15A

P-Channel

Voltage:06=60V

Package explain:D=TO-251

Ordering information

Part number	Package	Marking	Packing	Quantity
ADM15P06D	TO-251	ADM15P06D	Tube	80pcs