

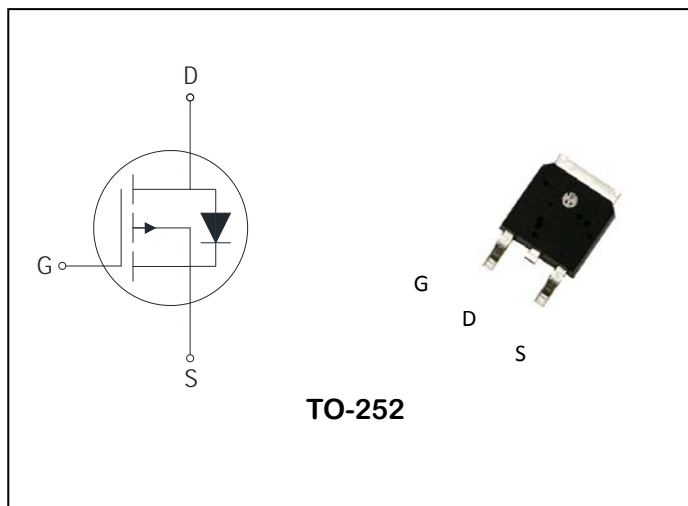
P-Channel Logic Level Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(ON)} (m\Omega)$
-100V	-30A	38m Ω

Features:

- Low Gate Charge for Fast Switching Application
- Low $R_{DS(ON)}$ to Minimize Conductive Loss
- Reliable and Rugged
- 100% EAS Guaranteed



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

Symbol	Parameter		Ratings	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		-100	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to150	°C
I _S	Diode Continuous Forward Current	T _C =25°C	-30	A
Mounted on Large Heat Sink				
I _{DM}	300μs Pulse Drain Current Tested ⁽²⁾	T _C =25°C, V _{GS} =-10V	-120	A
I _D	Continuous Drain Current ⁽¹⁾	T _C =25°C, V _{GS} =-10V	-30	A
P _D	Maximum Power Dissipation	T _C =25°C	73	W

Thermal Characteristics

Symbol	Parameter	Ratings	Unit
R_{thJC}	Thermal resistance junction-case max ⁽¹⁾	1.7	$^\circ\text{C/W}$
R_{thJA}	Thermal resistance junction-ambient max ⁽¹⁾	50	$^\circ\text{C/W}$

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	-100	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -80V, V _{GS} =0V T _J =25°C	--	--	-1	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250uA	-1.3	-1.9	-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} =-15A	--	32	38	mΩ
		V _{GS} = -4.5V, I _{DS} =-10A	--	36	45	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} = -30V, Frequency=1.0MHz	--	6510	--	pF
C _{oss}	Output Capacitance		--	228	--	
C _{rss}	Reverse Transfer Capacitance		--	175	--	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time(1)	V _{DD} =-50V, I _D = -1A, V _{GS} = -10V, R _{GEN} =6.8 Ω	--	22	--	ns
t _r	Turn-on Rise Time(1)		--	26	--	
t _{d(OFF)}	Turn-off Delay Time(1)		--	74	--	
t _f	Turn-off Fall Time(1)		--	66	--	
Q _g	Total Gate Charge(1)	V _{DS} =-50V, V _{GS} = -10V, I _{DS} =-10A	--	69	--	nC
Q _{gs}	Gate-Source Charge(1)		--	14	--	
Q _{gd}	Gate-Drain Charge(1)		--	19	--	
Avalanche Characteristics						
EAS	Single Pulse Avalanche Energy ⁽³⁾	V _{DD} =25V,L=0.5mH ,V _{GS} =10 V,R _g =25 Ω, I _{AS} =-35A T _J =25°C	306			mJ
Diode Characteristics						
V _{SD}	Diode Forward Voltage(2)	I _{SD} =-30A,V _{GS} = 0V T _J =25°C	--	-0.9	-1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =10A, dI _{SD} /dt=100A/μs	--	52	--	ns
q _{rr}	Reverse Recovery Charge		--	128	--	nC

NOTES:

1. Surface Mounted on FR4 Board, t ≤ 10 sec.
2. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
3. The Min. value is 100% EAS tested guarantee.

Typical Performance Characteristics

Figure 1: On-Region Characteristics

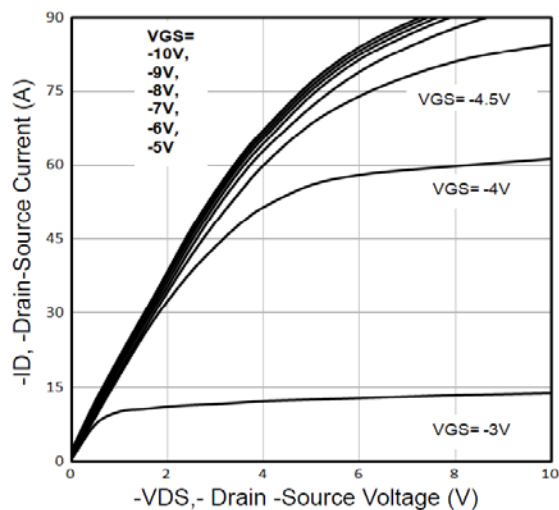


Figure 2: Transfer Characteristics

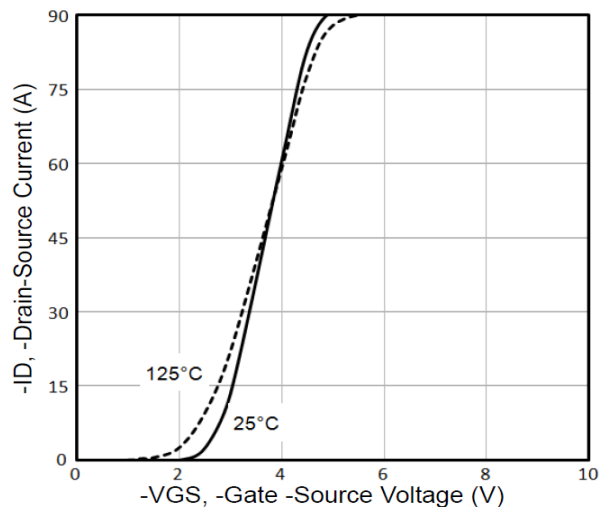


Figure 3: $-V_{GS(TH)}$ Gate-Source Voltage Vs. T_j

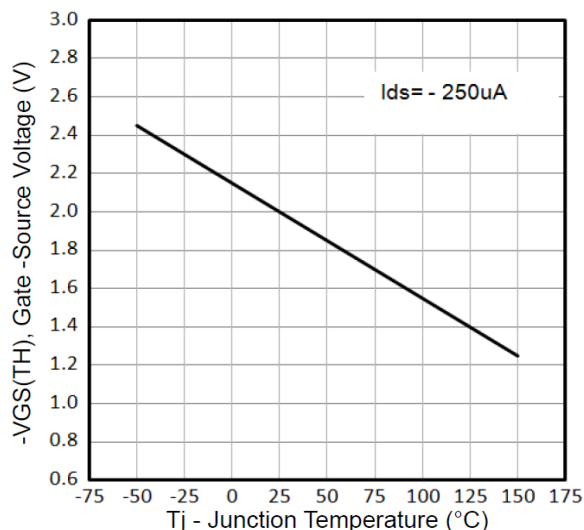


Figure 4: Normalized On-Resistance Vs. T_j

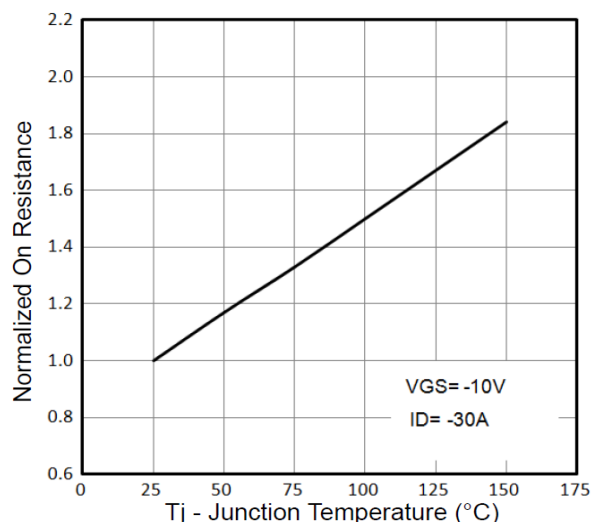


Figure 5: Source- Drain Diode Forward

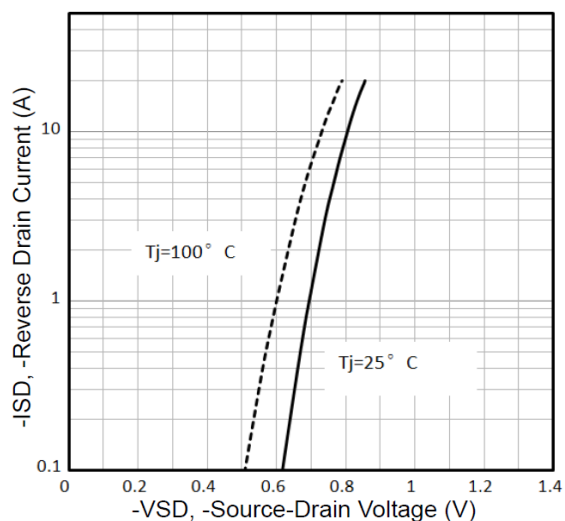


Figure 6: Gate Charge Characteristics

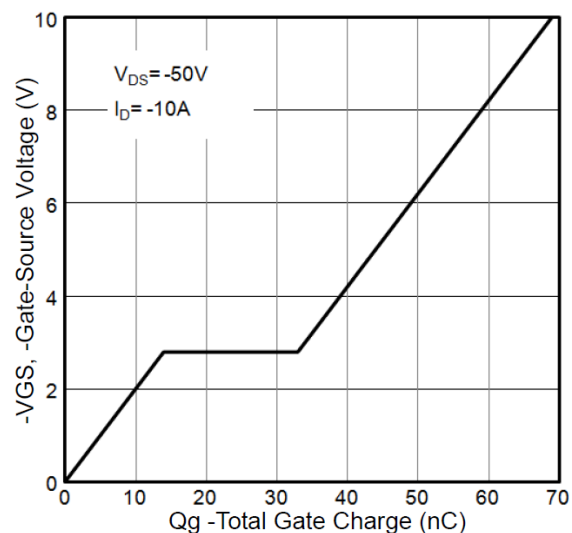


Figure 7: Capacitance vs Vds

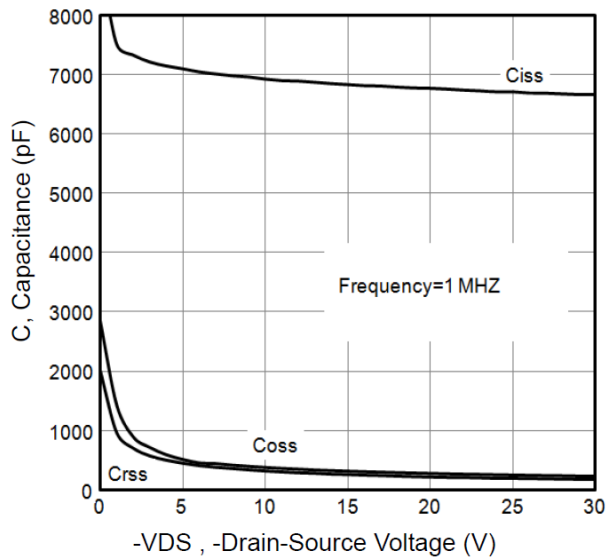


Figure 8: Safe Operation Area

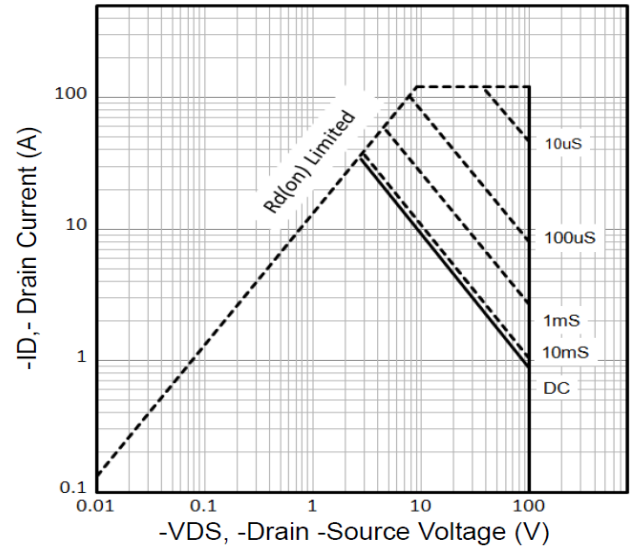
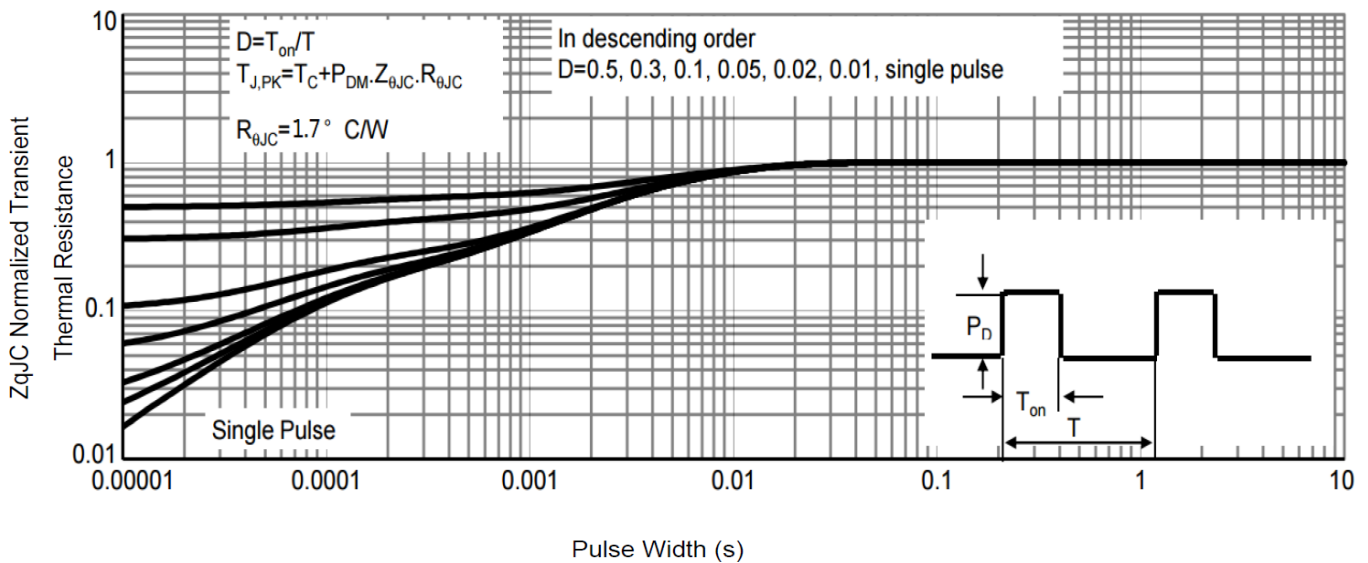
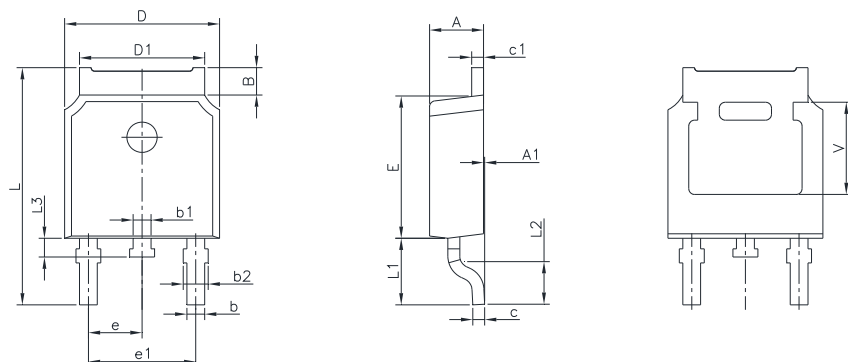


Figure 9: Normalized Maximum Transient Thermal Impedance



PACKAGE MECHANICAL DATA

TO-252-2 Package Dimension



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
B	1.070	1.220	0.042	0.048
b	0.720	0.850	0.028	0.033
b1	0.720	0.850	0.028	0.033
c	0.450	0.620	0.017	0.024
c1	0.450	0.620	0.017	0.024
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.900	6.200	0.232	0.244
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
L	9.500	10.60	0.374	0.396
L1	2.550	2.900	0.100	0.114
L2	1.400	1.780	0.055	0.070
L3	0.600	0.900	0.024	0.035
V	3.950 REF.		0.155 REF.	

Ordering information

Part number	Package	Marking	Packing	Quantity
ADM30P10E	TO-252-2	ADM30P10E	Tube	80pcs
			Embossed tape	2500pcs

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