

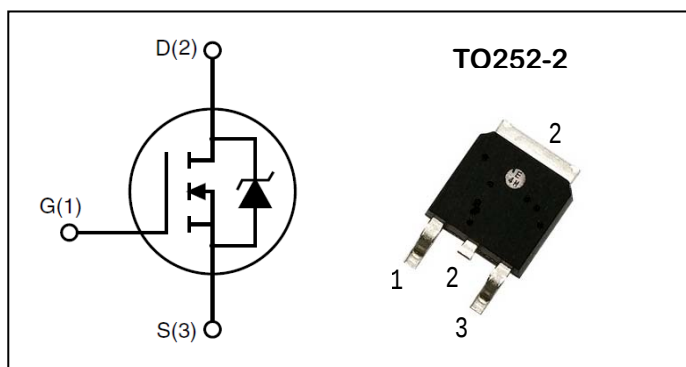
N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY

V_{DSS}	I_D	$R_{DS(ON)}$ (m Ω)
200V	8A	0.3 Ω

Features:

- Low Gate Charge for Fast Switching Application
- Low $R_{DS(ON)}$ to Minimize Conductive Loss
- 100% EAS Guaranteed
- Optimized $V_{(BR)DSS}$ Ruggedness
- Lead-Free, RoHS Compliant



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

Symbol	Parameter		Ratings	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		200	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	T _C =25°C	8	A
Mounted on Large Heat Sink				
I _{DM}	300μs Pulse Drain Current Tested ⁽²⁾	T _C =25°C	36	A
I _D	Continuous Drain Current ⁽¹⁾	T _C =25°C	8	A
		T _C =100°C	6	A
P _D	Maximum Power Dissipation	T _C =25°C	74	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⁾	60	$^\circ\text{C/W}$

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

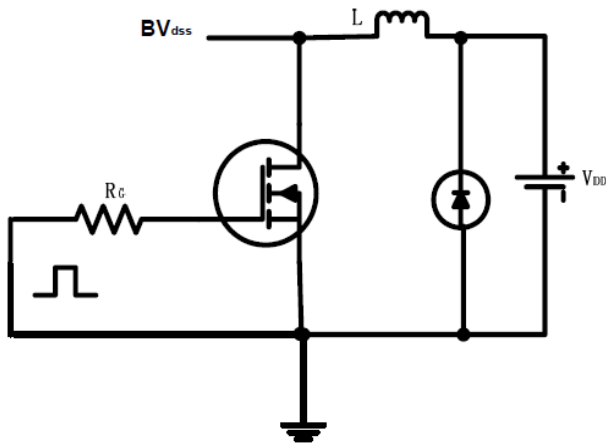
Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
On/off Characteristics						
V(BR)DSS	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250uA	200	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =200V,V _{GS} =0V ,T _J =25° C	--	--	5	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250uA	2		4	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} =4.5A	--	0.25	0.3	Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} =0V,	--	684	--	pF
C _{oss}	Output Capacitance	V _{DS} =20V,	--	103	--	
C _{rss}	Reverse Transfer Capacitance	Frequency=1MHz	--	37	--	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time	V _{DS} =100V,	--	12	--	ns
t _r	Turn-on Rise Time	I _D = 9A, V _{GS} = 10V,	--	22	--	
t _{d(OFF)}	Turn-off Delay Time	R _{GEN} =25 Ω	--	50	--	
t _f	Turn-off Fall Time		--	48	--	
Q _g	Total Gate Charge	V _{DS} =160V, V _{GS} = 10V,	--	23	--	nC
Q _{gs}	Gate-Source Charge	I _{DS} =9A	--	2.5	--	
Q _{gd}	Gate-Drain Charge		--	10	--	
Avalanche Characteristics						
EAS	Single Pulse Avalanche Energy ⁽³⁾	V _{DD} =50V,L=1mH ,V _{GS} =10V ,R _g =25 Ω	100	--	--	mJ
Diode Characteristics						
V _{SD}	Diode Forward Voltage ⁽²⁾	I _{SD} = 9A, V _{GS} = 0	--	--	1.4	V
t _{rr}	Reverse Recovery Time	I _{SD} =9A, dI _{SD} /dt=100A/μs	--	190	--	ns
q _{rr}	Reverse Recovery Charge		--	1.7	--	nC

NOTES:

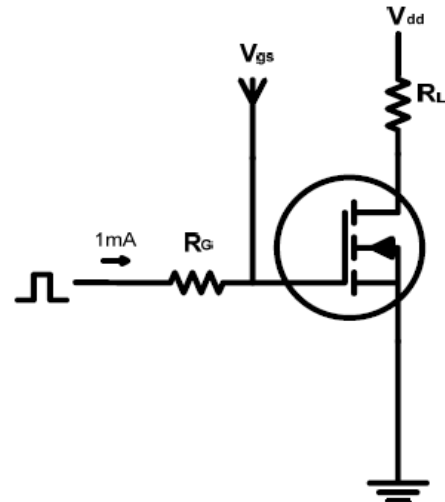
- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 1%
- 3.The Min. value is 100% EAS tested guarantee.

Test circuits and Waveforms

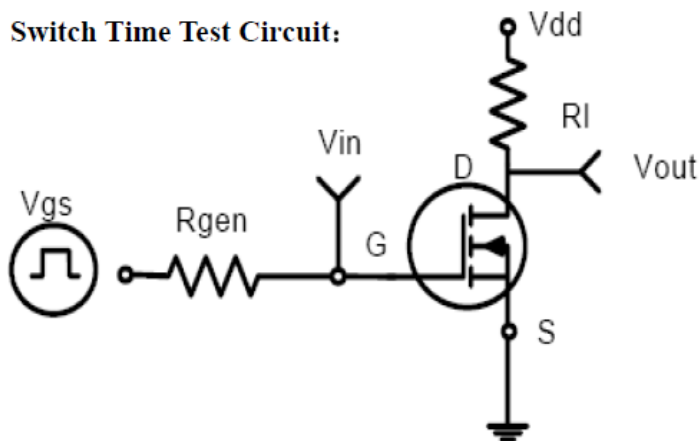
EAS test circuits:



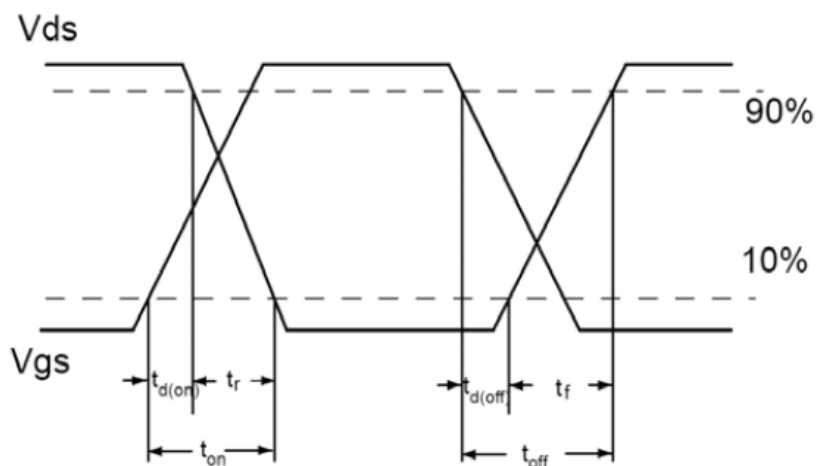
Gate charge test circuit:



Switch Time Test Circuit:

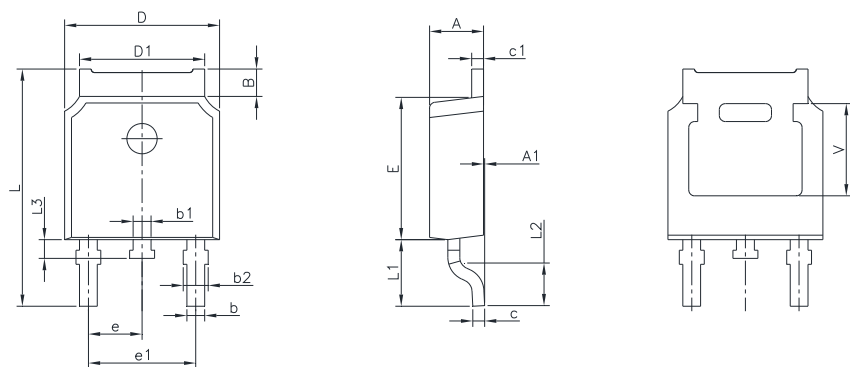


Switch Waveforms:



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
ADM8N20E	TO-252	ADM8N20E	Embossed tape	2500pcs