

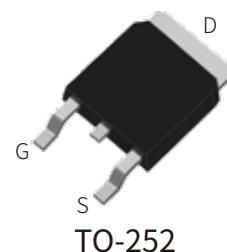
FEATURES

| Advanced Split Gate Trench Technology

| Excellent $R_{DS(ON)}$ and Low Gate Charge

| 100% UIS TESTED!

| 100% ΔV_{ds} TESTED!

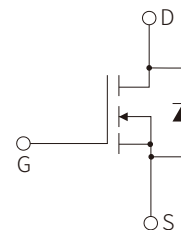


APPLICATION

| Load Switch

| PWM Application

| Power Management



Schematic Symbol

APPROVALS

RoHS Compliance with 2011/65/EU

HF Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	150	V
Pulse Drain Current Tested ⁽¹⁾	I_{DM}	28	A
Continuous Drain Current	I_D	$T_C=25^{\circ}\text{C}$ 7	A
		$T_C=100^{\circ}\text{C}$ 4.2	A
Gate-Source Voltage	V_{GSS}	± 20	V
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	36.8	W
Single Pulsed Avalanche Energy ⁽²⁾	E_{AS}	4.4	mJ
Junction Temperature	T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^{\circ}\text{C}$
Thermal Resistance- Junction to Case	$R_{\theta JC}$	3.4	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_{DS}=250\mu A$	150			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	1.4	2	2.6	V
Drain Leakage Current	I_{DSS}	$V_{DS}=150V, V_{GS}=0V$			1	μA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
On-State Resistance ⁽³⁾	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$		240	290	m Ω
		$V_{GS}=6V, I_D=3A$		250	300	m Ω
Dynamic Characteristics						
Total Gate Charge	Q_g	$V_{GS}=0\text{ to }10V$ $V_{DS}=75V, I_D=5A$		8.2		nC
Gate Source Charge	Q_{gs}			1.6		nC
Gate Drain("Miller") Charge	Q_{gd}			2.2		nC
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=25V,$ $f=1MHz$		630		pF
Output capacitance	C_{oss}			31		pF
Reverse transfer capacitance	C_{rss}			25		pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=75V, V_{GS}=10V$ $R_{GEN}=6\Omega, I_D=1A$		8		nS
Turn-on Rise Time	t_r			10		nS
Turn-Off Delay Time	$t_{d(off)}$			20		nS
Turn-Off Fall Time	t_f			15		nS
Drain-Source Diode Characteristics and Max Ratings						
Drain to Source Diode Forward Voltage	V_{SD}	$I_S=5A, V_{GS}=0V$			1.2	V
Maximum Continuous Drain to Source Diode Forward Current	I_S				7	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}				28	A

Notes:

- 1.Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
- 2.E_{AS} condition: Starting T_J=25°C, V_{DD}=75V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=4.2A
- 3.Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

PARAMETER CHARACTERISTIC CURVE

Fig 1: Output Characteristics

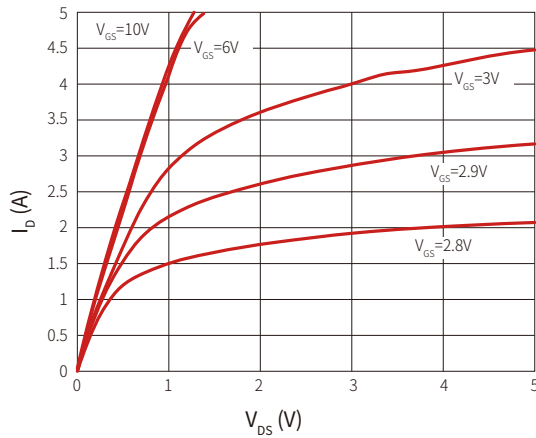


Figure 2: Typical Transfer Characteristics

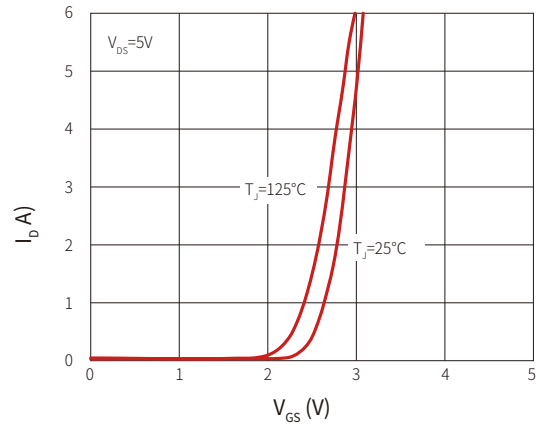


Figure 3: On-Resistance vs. Drain Current

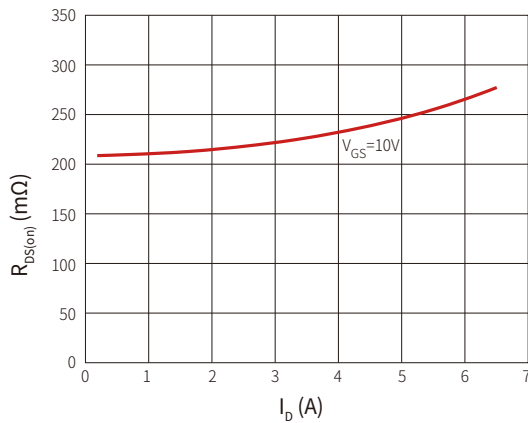


Figure 4: Body Diode Characteristics

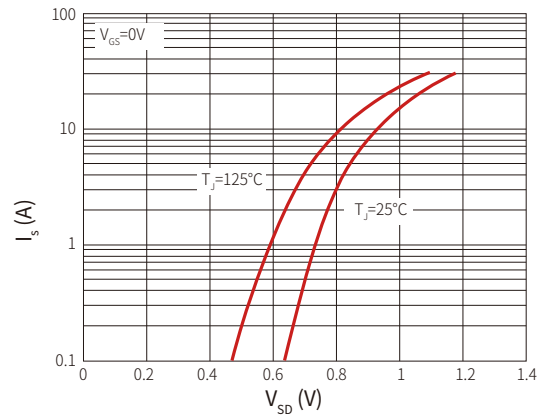


Figure 5: Gate Charge Characteristics

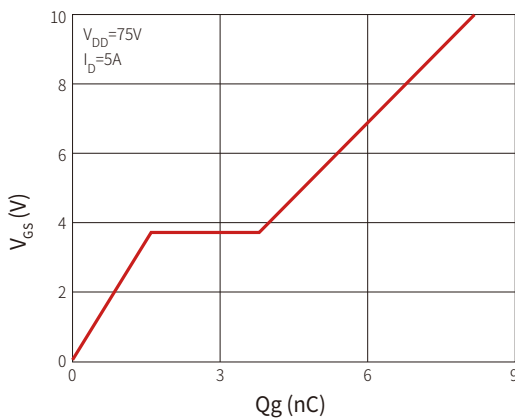
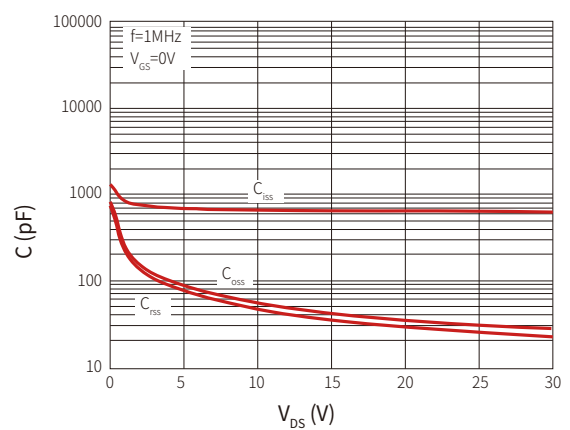
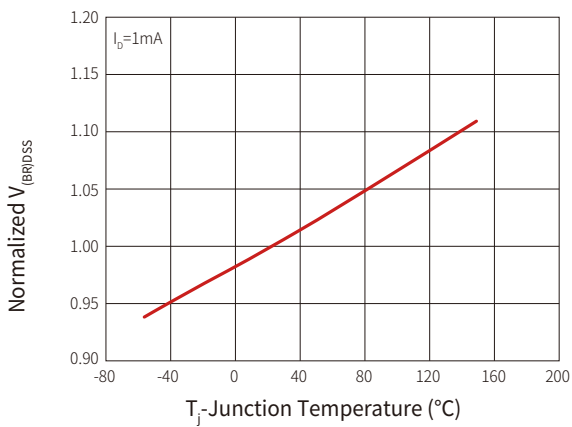
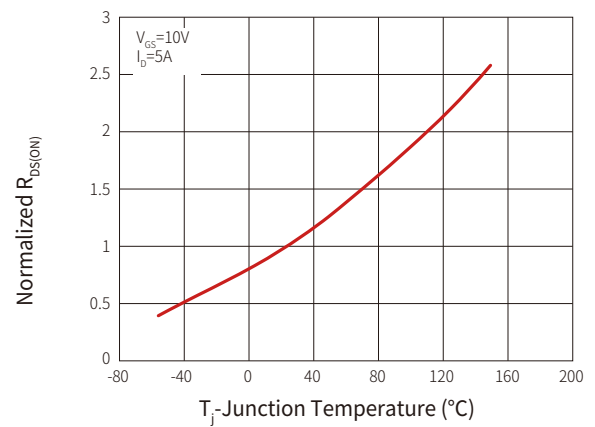
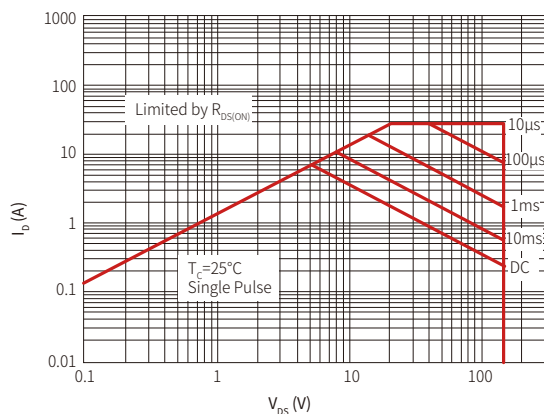
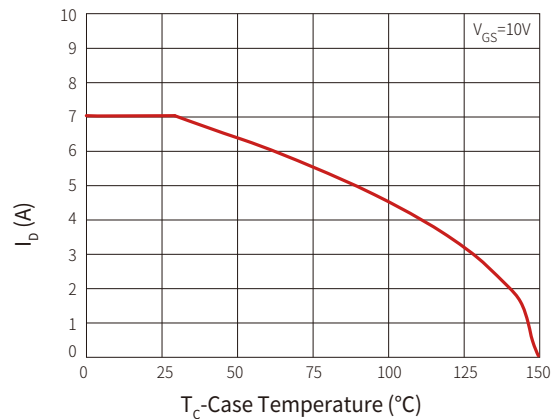
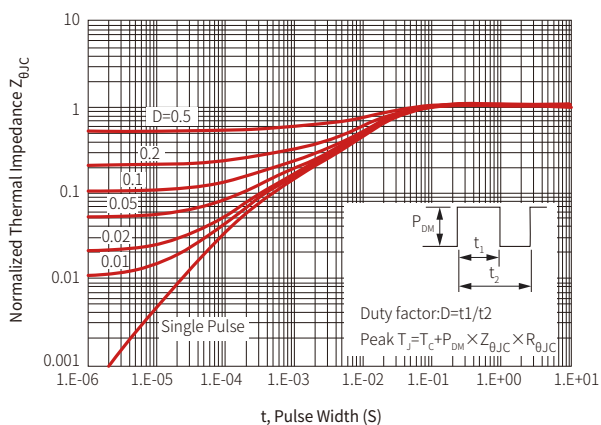
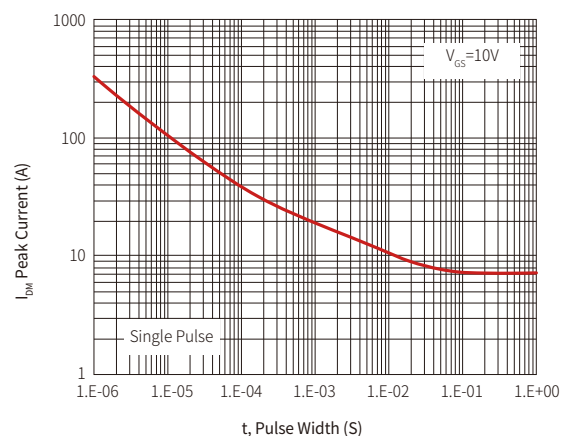
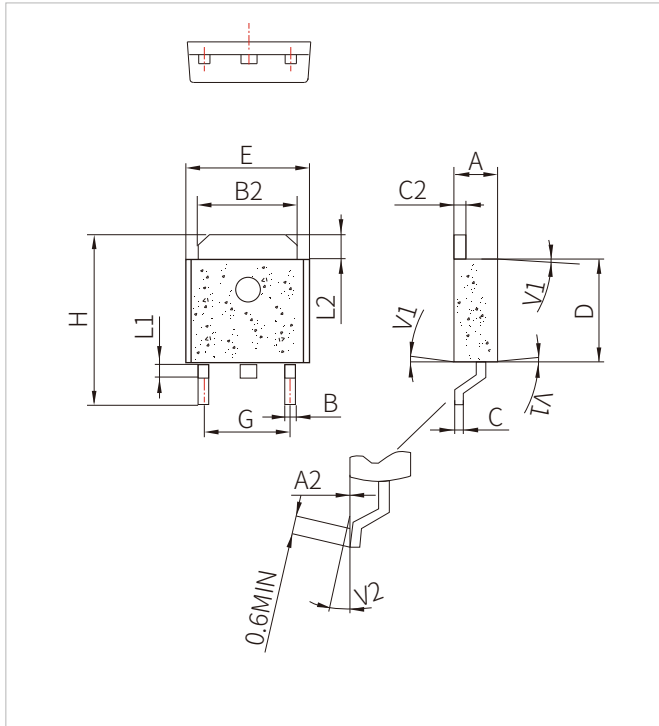


Figure 6: Capacitance Characteristics



**Figure 7: Normalized Breakdown voltage vs. Junction voltage****Figure 8: Normalized On Resistance vs. Junction voltage****Figure 9: Maximum Safe Operation Area****Figure 10: Maximum Continuous Drain Current vs. Case Temperature****Figure 11: Normalized Maximum Transient Thermal Impedance****Figure 12: Peak Current Capacity**

TO-252 PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.80	0.252		0.268
G	4.40		4.70	0.173	0.1	0.185
H	9.35		10.7	0.368		0.421
L1	1.30		1.70	0.051	0.143	0.067
L2	1.37		1.50	0.054		0.059
V1		4°			0.130	
V2	0°		8°	0°		8°

ORDERING INFORMATION

Part Number	Component Package	Marking	QTY/Reel	Reel Size
SNM7N15D	TO-252	 7N15 XXXX	2500PCS	13"

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