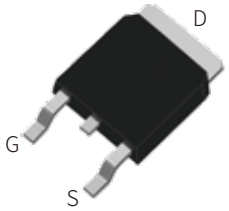
FEATURES

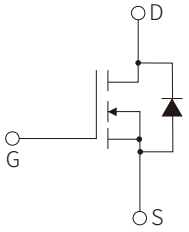
- Advanced Split Gate Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- 100% UIS TESTED!
- 100% ΔVds TESTED!



TO-252

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}	200	V
Pulse Drain Current Tested (1)		I_{DM}	80	A
Continuous Drain Current	T_C=25°C	I_D	20	A
	T_C=100°C		12	A
Gate-Source Voltage		V_{GSS}	±20	V
Power Dissipation (Tc=25°C)		P_D	39	W
Single Pulsed Avalanche Energy (2)		E_{AS}	101	mJ
Junction Temperature		T_J	-55 to 150	°C
Storage Temperature		T_{STG}	-55 to 150	°C
Thermal Resistance- Junction to Case		$R_{\theta JC}$	3.2	°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}=250μA	200			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=250μA	2.4	3	3.6	V
Drain Leakage Current	I_{DSS}	V_{DS}=200V,V_{GS}=0V			1	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±20V ,V_{DS}=0V			±100	nA
On-State Resistance (3)	$R_{DS(on)}$	V_{GS}=10V,I_D=8A		88	114	mΩ
Dynamic Characteristics						
Total Gate Charge	Q_g	V_{GS} = 0 to 10V V_{DS}=100V,I_D=3A		18		nC
Gate Source Charge	Q_{gs}			3.2		nC
Gate Drain("Miller") Charge	Q_{gd}			3.5		nC
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=100V, f=1MHz		605		pF
Output capacitance	C_{oss}			61		pF
Reverse transfer capacitance	C_{rss}			11		pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=100V,V_{GS}=10V R_{GEN}= 1Ω, I_D=3A		16		nS
Turn-on Rise Time	t_r			31		nS
Turn-Off Delay Time	$t_{d(off)}$			33		nS
Turn-Off Fall Time	t_f			30		nS
Drain-Source Diode Characteristics and Max Ratings						
Drain to Source Diode Forward Voltage	V_{SD}	I_S=8A,V_{GS}=0V			1.2	V
Maximum Continuous Body Diode Forward Current	I_S				20	A
Maximum Pulsed Body Diode Forward Current	I_{SM}				80	A
Body Diode Reverse Recovery Time	t_{rr}	I_F=5A, dI/dt=100A/μs		90		ns
Body Diode Reverse Recovery Charge	Q_{rr}			260		nC

Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. EAS condition: Starting T_J=25C, V_{DD}=100V, V_{GS}=10V, R_G=25ohm, L=10mH, I_{AS}=4.5A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

PARAMETER CHARACTERISTIC CURVE

Fig 1: Output Characteristics

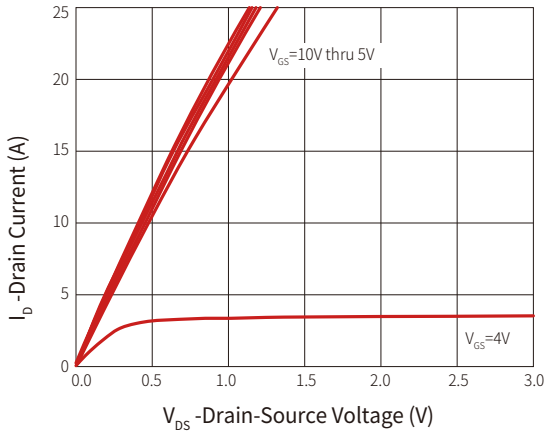


Figure 2: Transfer Characteristics

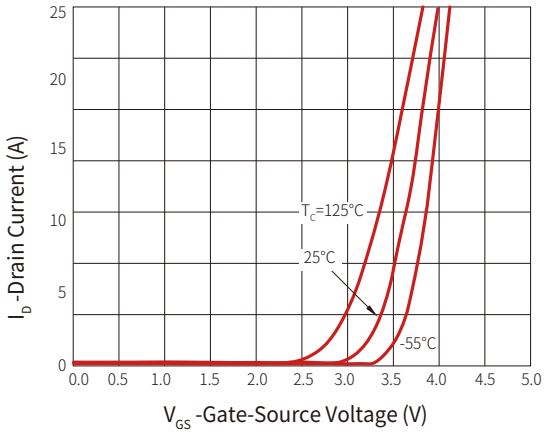


Figure 3: Rdson- Drain Current

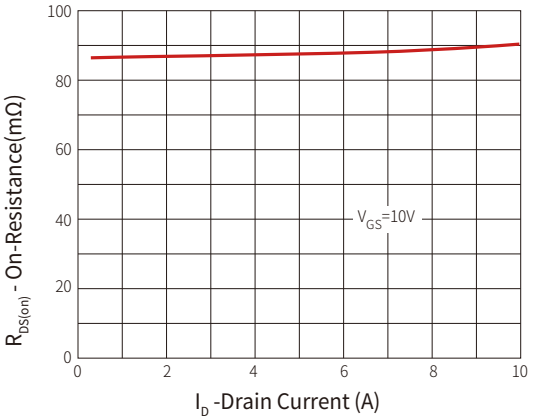


Figure 4: Rdson-JunctionTemperature

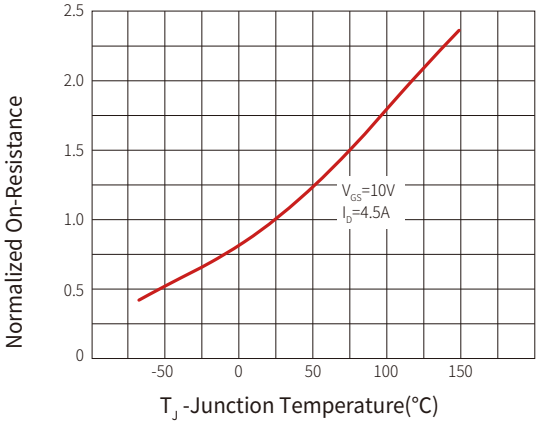


Figure 5: Gate Charge

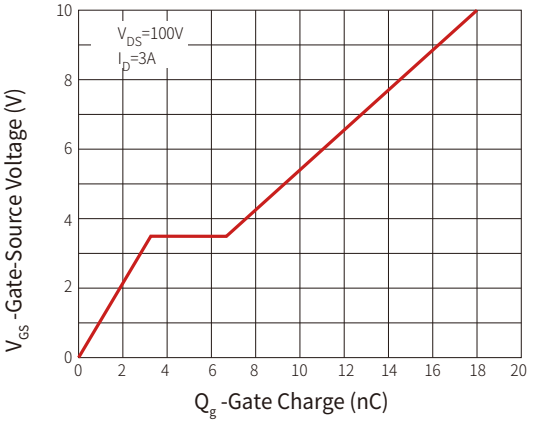


Figure 6: Capacitance Characteristics

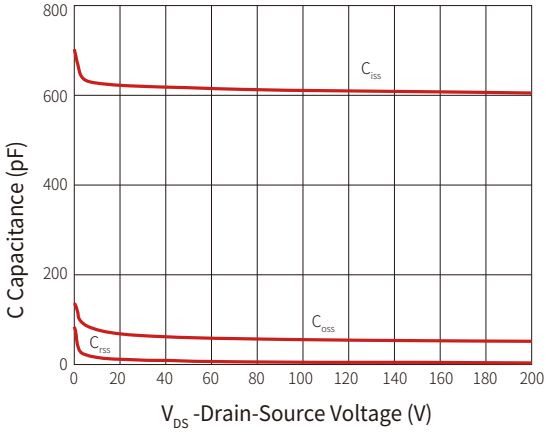


Figure 7: Safe Operation Area

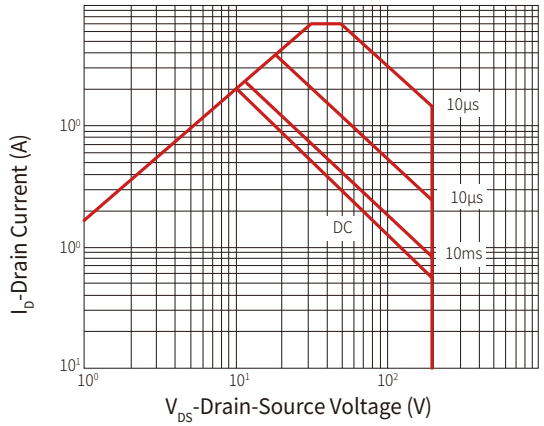


Figure 8: BV_{DSS} vs Junction Temperature

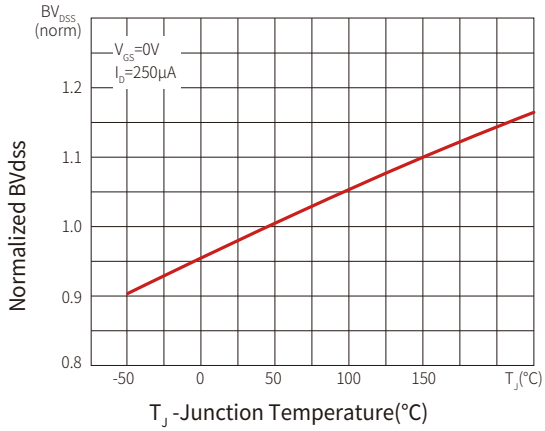


Figure 9: $V_{GS(th)}$ vs Junction Temperature

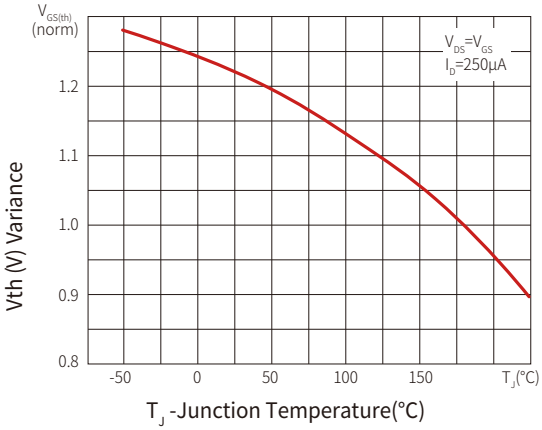


Figure 10: Figure 11 Current De-rating

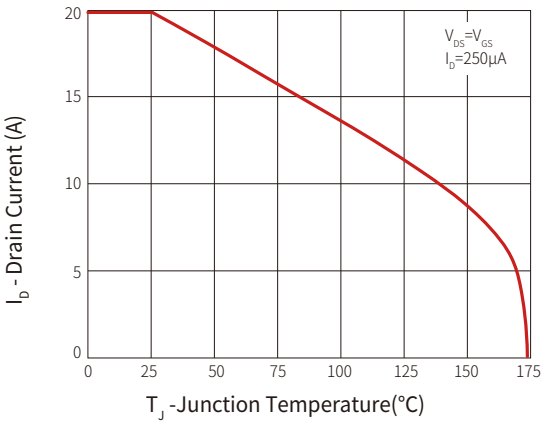
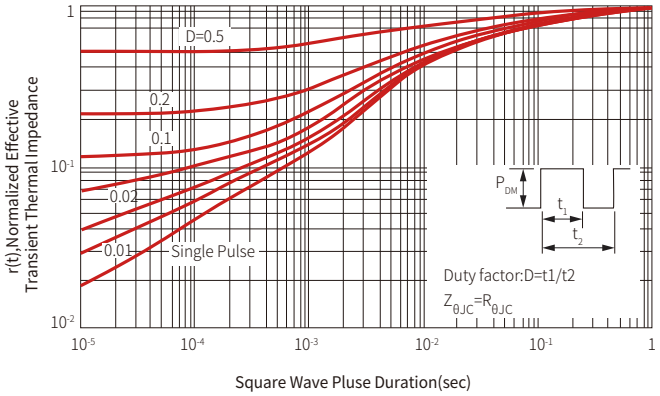
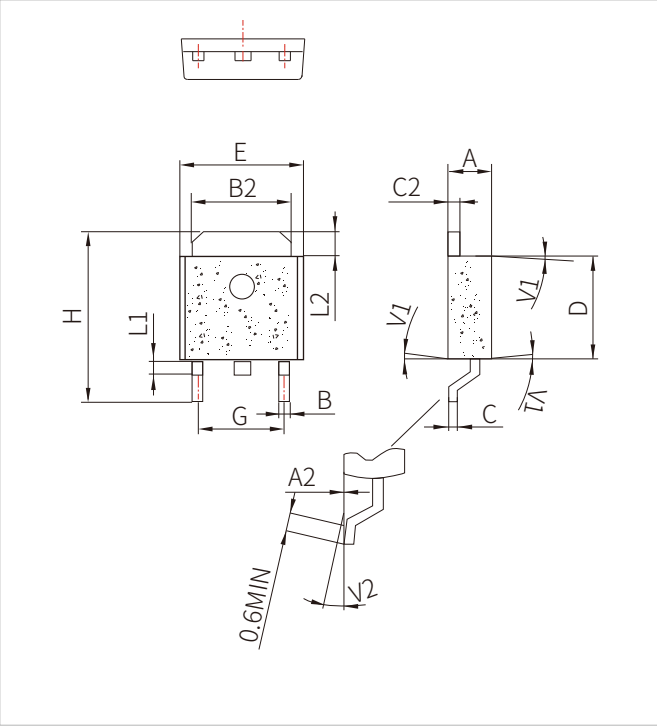


Figure 11: Normalized Maximum Transient Thermal Impedance



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
SNM20N20D	TO-252	20N20 XXXX	2500PCS	13”

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