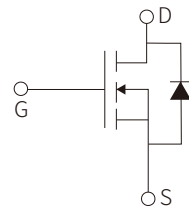
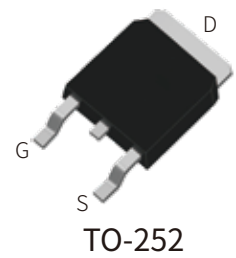


FEATURES

- | $V_{DS} = 30V, I_D = 50A$
- | $R_{DS(ON)(Typ)} = 7\text{ m}\Omega @ V_{GS} = 10V$
- | $R_{DS(ON)(Typ)} = 10\text{ m}\Omega @ V_{GS} = 4.5V$
- | Very low On-resistance $R_{DS(ON)}$
- | Fast switching
- | Low cr_{ss}
- | 100% avalanche tested



Schematic Symbol

APPLICATION

- | PWM applications
- | Load switch
- | Power management

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_{DS}	30	V
Gate Threshold Voltage	V_{GSS}	± 20	V
Drain Current - Continuous ($T_c = 25^\circ\text{C}$)	I_D	50	A
Drain Current - Continuous ($T_c = 100^\circ\text{C}$)		30	
Pulsed Drain Current ^(Note1)	I_{DM}	120	A
Single Pulsed Avalanche Energy ^(Note2)	E_{AS}	39	mJ
Power Dissipation ($T_c = 25^\circ\text{C}$)	P_D	18	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	4.32	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	B _{VDSS}	V _{GS} =0V,I _D =250μA	30			V
Gate-source leakage current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V,V _{GS} =0V			1	μA
		V _{DS} =24V,T _C =125°C			10	μA
On Characteristics						
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250μA	1.0		2.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V,I _D =12A		7	8.5	mΩ
		V _{GS} =4.5V,I _D =10A		10	14	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V,V _{GS} =0V,f=1.0MHz		1200		pF
Output Capacitance	C _{oss}			163		pF
Reverse Transfer Capacitance	C _{rss}			131		pF
Turn-on Delay Time	t _{d(on)}	V _{DS} =12V,I _D =5A V _{GS} =10V,R _G =3.3Ω (Note 3)		4.5		ns
Turn-on Rise Time	t _r			10.8		ns
Turn-Off Delay Time	t _{d(off)}			25.5		ns
Turn-off Fall Time	t _f			9.6		ns
Total Gate Charge	Q _g	V _{DS} =20V,I _D =12A V _{GS} =4.5V (Note 3)		12.8		nC
Gate-Source Charge	Q _{gs}			3.3		nC
Gate-Drain Charge	Q _{gd}			6.5		nC
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain-Source Diode Forward Curren	I _S				50	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				120	A
Drain to Source Diode Forward Voltage	V _{SD}	V _{GS} = 0V, I _{SD} =5A,T _J = 25°C			1.2	V

Notes

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. E_{AS} condition: $T_J=25^\circ C$, $V_{DD}=20V$, $V_G=10V$, $R_G=25\Omega$, $L=0.1mH$,
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

PARAMETER CHARACTERISTIC CURVE

Figure1: Typical Output Characteristics

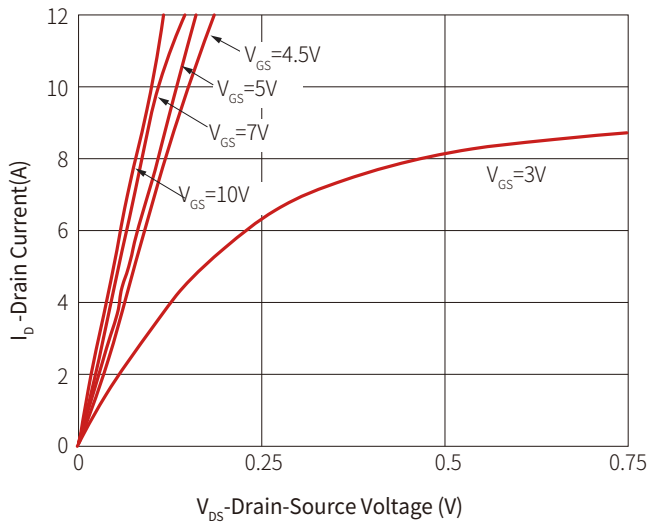


Figure2: On-Resistance vs. G-S Voltage

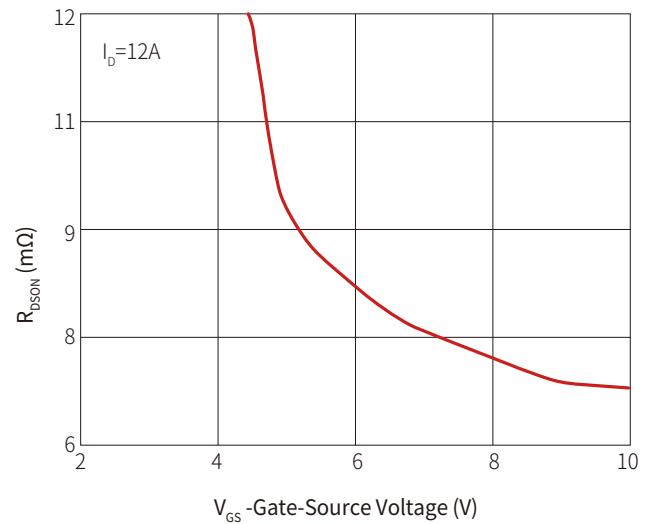


Figure3: Forward Characteristics of Reverse

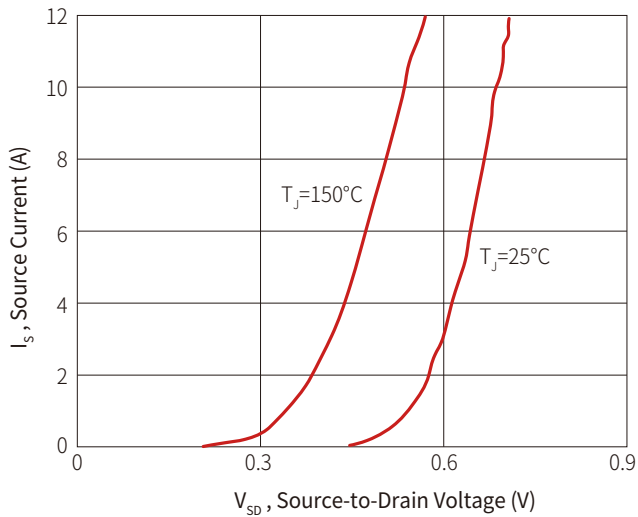


Figure 4: Gate-Charge Characteristics

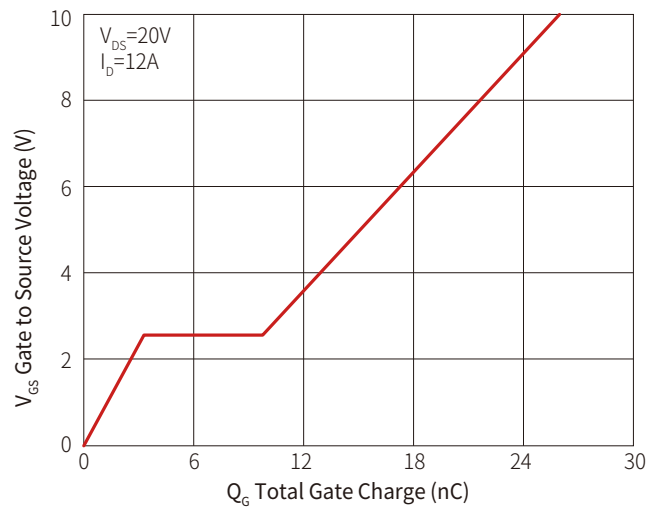


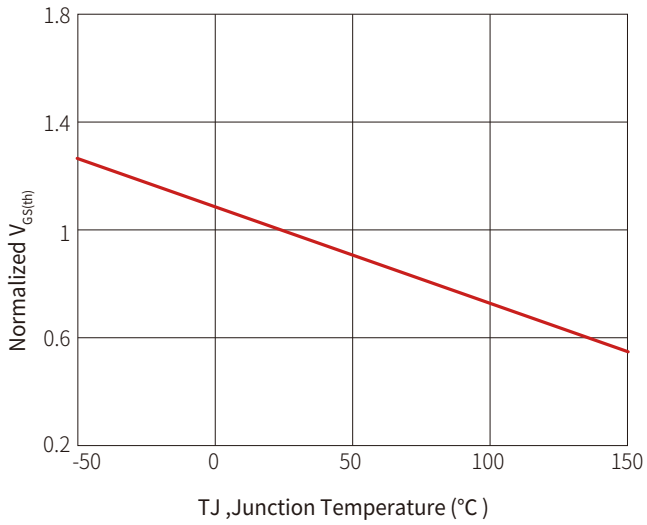
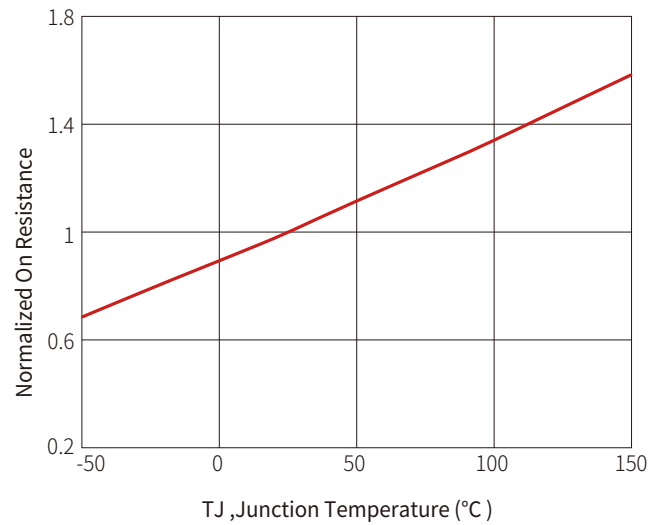
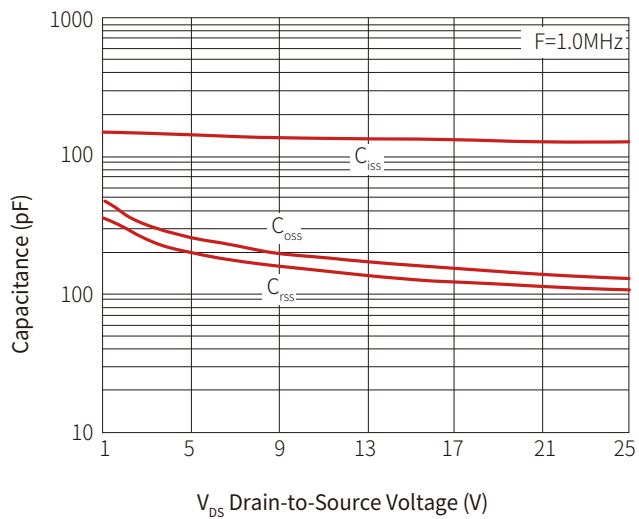
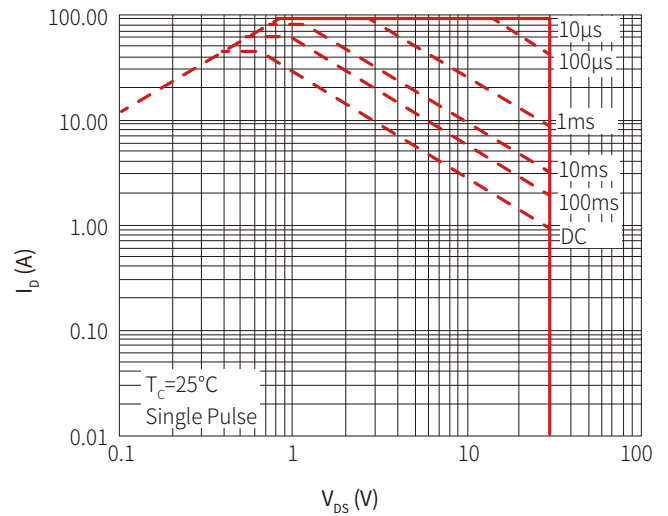
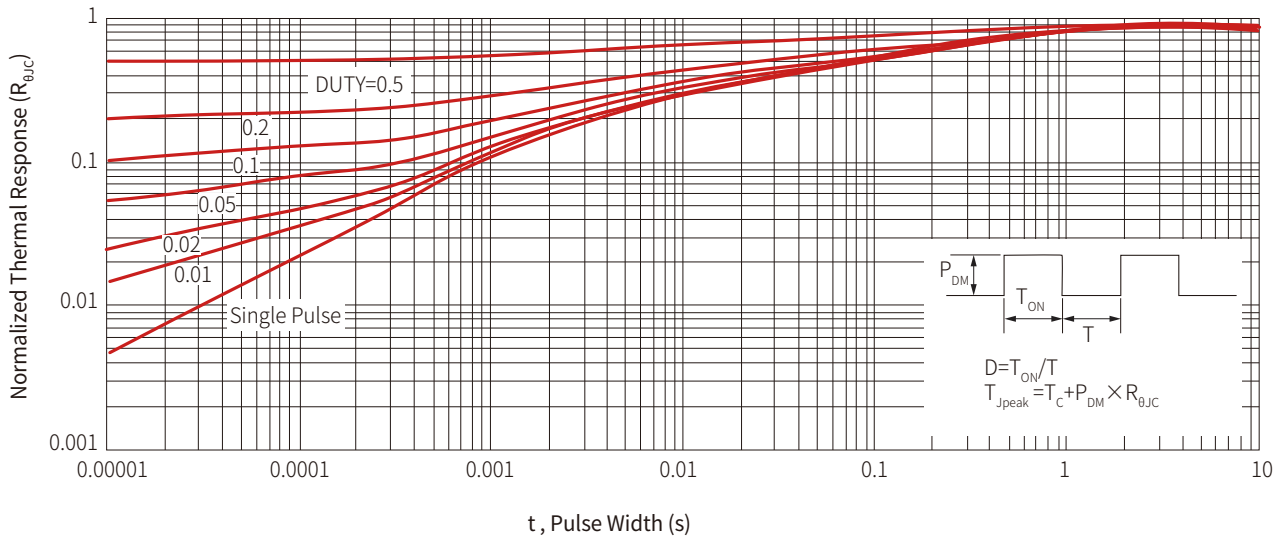
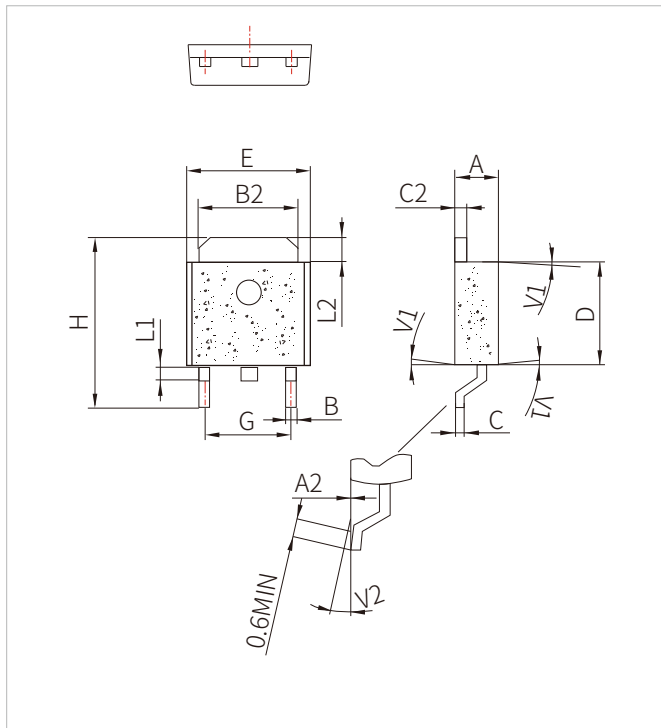
Figure 5: ormalized $V_{GS(th)}$ vs. T_J

Figure 6: Normalized $R_{DS(on)}$ VS. T_J

Figure 7: Capacitance

Figure 8: Safe Operating Area


Figure 9: 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
SNM50N03D	TO-252	 50N03 XXXX	2500PCS	13"

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