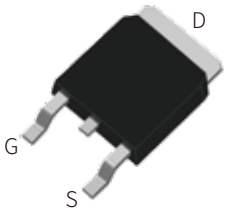
FEATURES

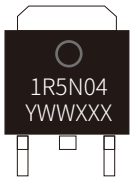
- Surface-Mounted Package
- Advanced Trench Cell design



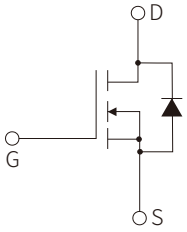
TO-252

APPLICATION

- MB and NB
- TV and Monitor
- DC to DC Converter
- LCD Inverter



Marking



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 T_C=25°C		V_{DS}	40	V
Drain Current (Pulsed) T_C=25°C V_{GS}=10V		I_{DM} **	360	A
Drain Current (DC)	T_C=25°C V_{GS}=10V	I_D ***	180	A
	T_C=100°C V_{GS}=10V		114	A
Gate-Source Voltage T_C=25°C		V_{GS}	±20	V
Drain power dissipation T_C=25°C		P_{tot}	96	W
Continuous-Source Current T_C=25°C		I_S	180	A
Single Pulsed Avalanche Energy V_{DD}=40V , L=1.0mH		E_{AS}	800	mJ
Junction Temperature		T_J	150	°C
Storage Temperature		T_{STG}	-55 to 150	°C
Thermal Resistance –Junction to Ambient		$R_{\theta JA}$ *	50	°C/W
Thermal Resistance- Junction to Case		$R_{\theta JC}$	1.3	°C/W

Notes:
* Surface Mounted on 1 in² pad area, t≤10 sec
** Pulse width ≤300 μs, duty cycle ≤ 2 %
*** Limited by bonding wire

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_{DS}=250μA	40			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=250μA	2		4	V
Drain Leakage Current	I_{DSS}	V_{DS}=32V,V_{GS}=0V			1	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±20V ,V_{DS}=0V			±100	nA
On-State Resistance	$R_{DS(on)}$ [a]	V_{GS}=10V,I_{DS}=30A		1.5	1.8	mΩ
		V_{GS}=6V,I_{DS}=20A		2.7	3.5	mΩ
Diode Characteristics						
Diode Forward Voltage	V_{SD} [a]	I_{SD}=30A,V_{GS}=0V			1.3	V
Reverse Recovery Time	t_{rr}	I_{DS}=30A, V_{GS}=0V dI_{SD}/dt=100A/μs		65		nS
Reverse Recovery Charge	Q_{rr}			65		nC
Dynamic Characteristics [b]						
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=20V, Frequency = 1 MHz		4711		pF
Output capacitance	C_{oss}			2287		pF
Reverse transfer capacitance	C_{rss}			131		pF
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=20V,V_{GEN}=10V R_G= 3.9Ω, R_L=0.66Ω, I_{DS}=30A		22		nS
Turn-on Rise Time	t_r			93		nS
Turn-Off Delay Time	$t_{d(off)}$			52		nS
Turn-Off Fall Time	t_f			62		nS
Gate Charge Characteristics [b]						
Total Gate Charge	Q_g	V_{DS}=20V,V_{GS}=10V,I_{DS}=30A		77		nC
Gate-Source Charge	Q_{gs}			26		nC
Gate-Drain Charge	Q_{gd}			17		nC

Notes:
a : Pulse test ; pulse width≤300μs, duty cycle≤2 %
b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Capability

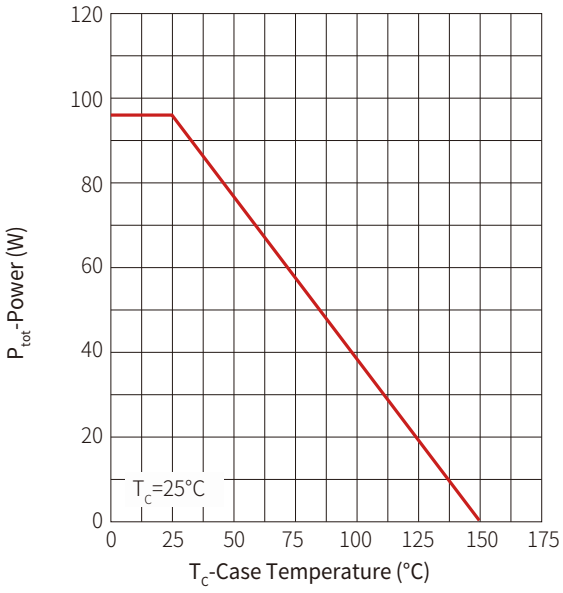


Figure2: Current Capability

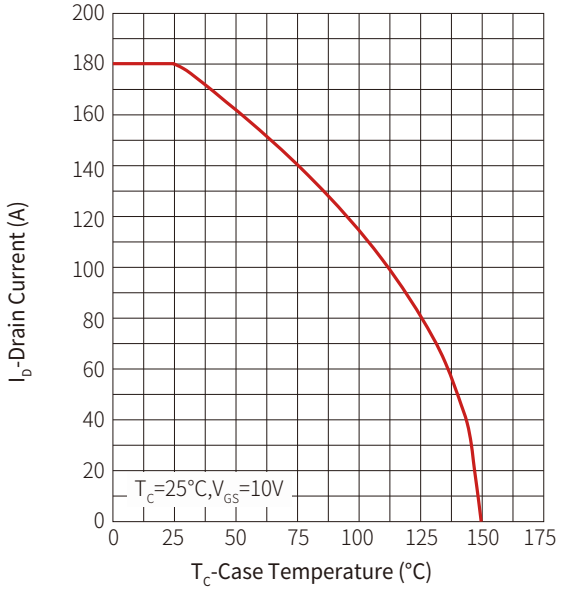


Figure3: Safe operating Area

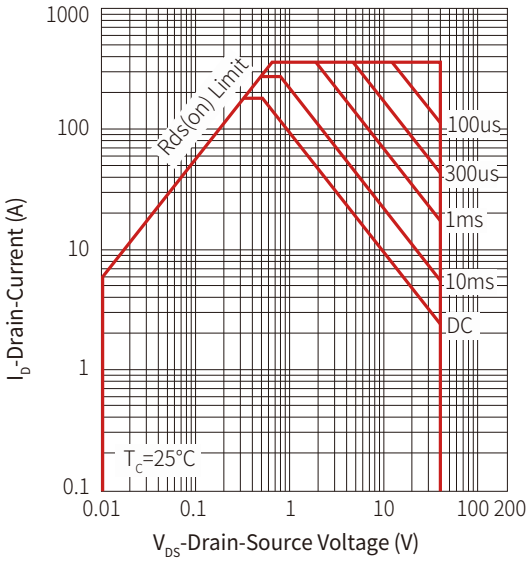


Figure 4: Transient Thermal Impedance

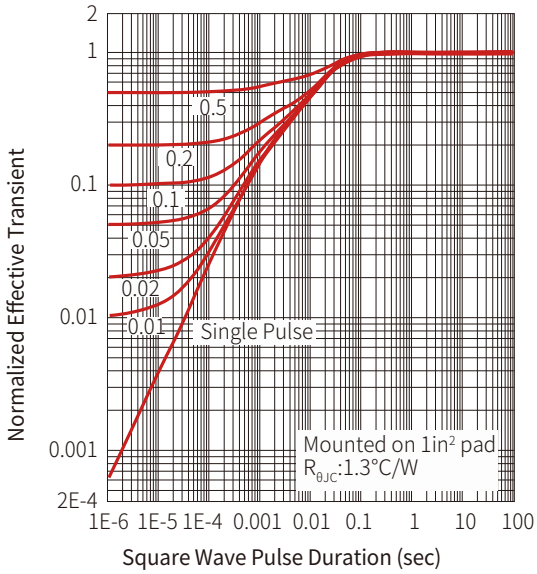


Figure 5:Output Characteristics

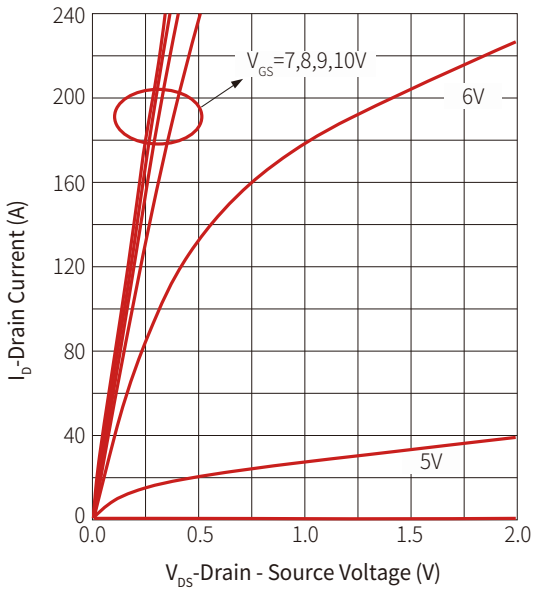


Figure 6: On Resistance

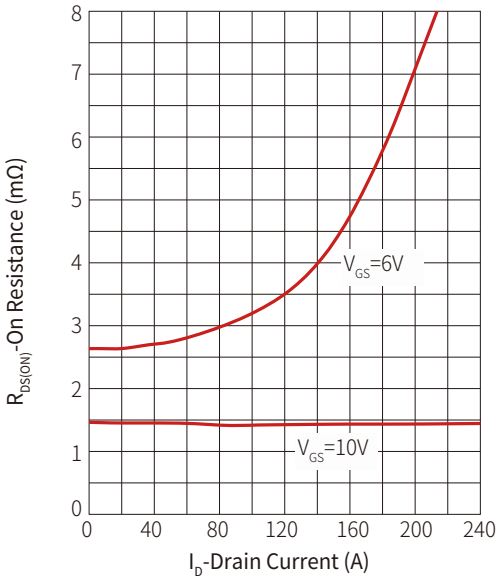


Figure 7:Transfer Characteristics

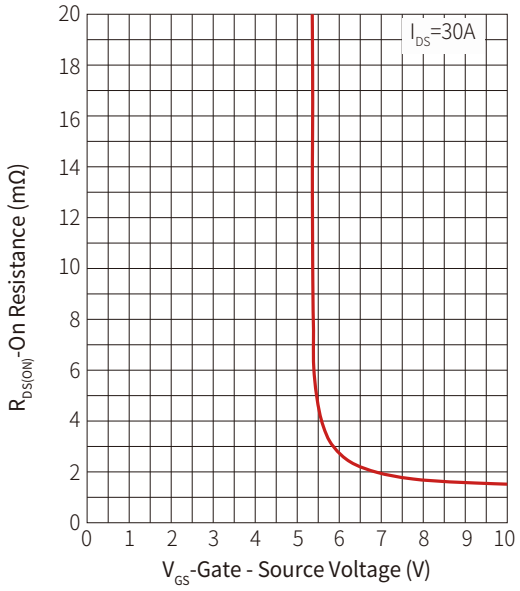


Figure 8: Normalized Threshold Voltage

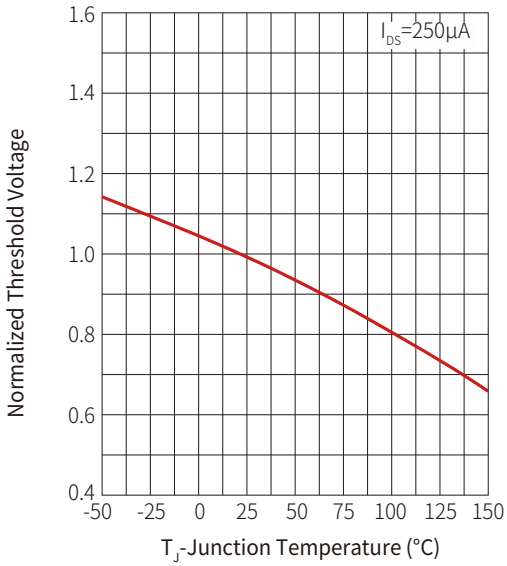


Figure 9:Normalized On Resistance

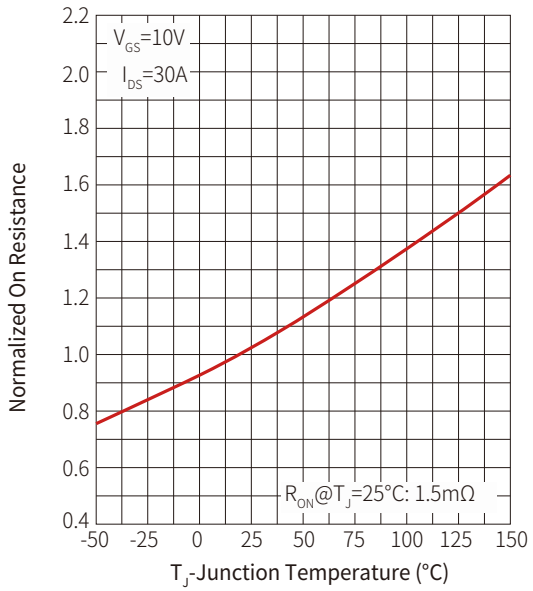


Figure 10: Diode Forward Current

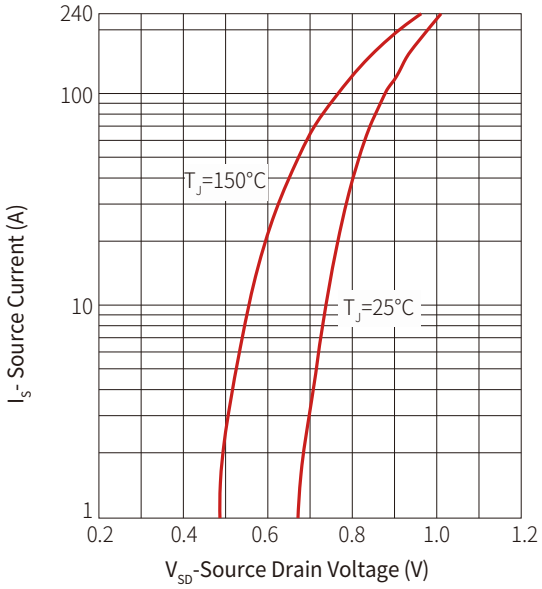


Figure 11:Capacitance

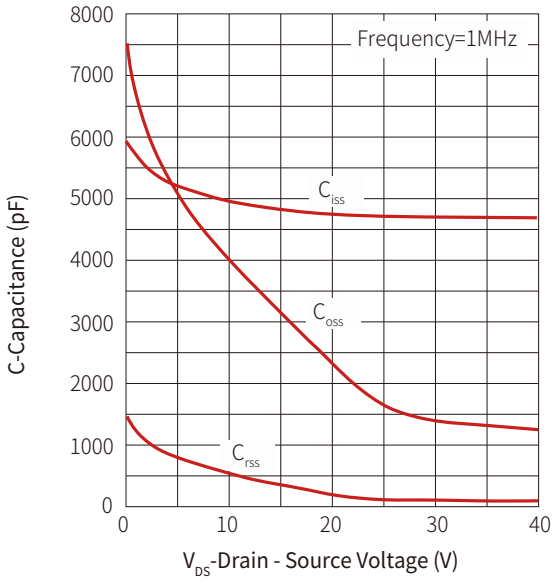
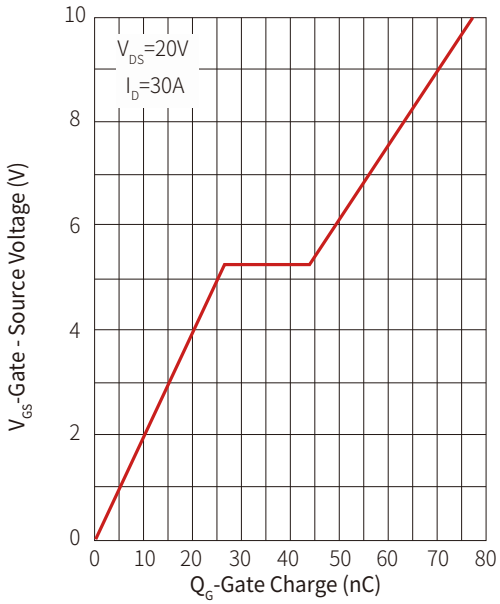
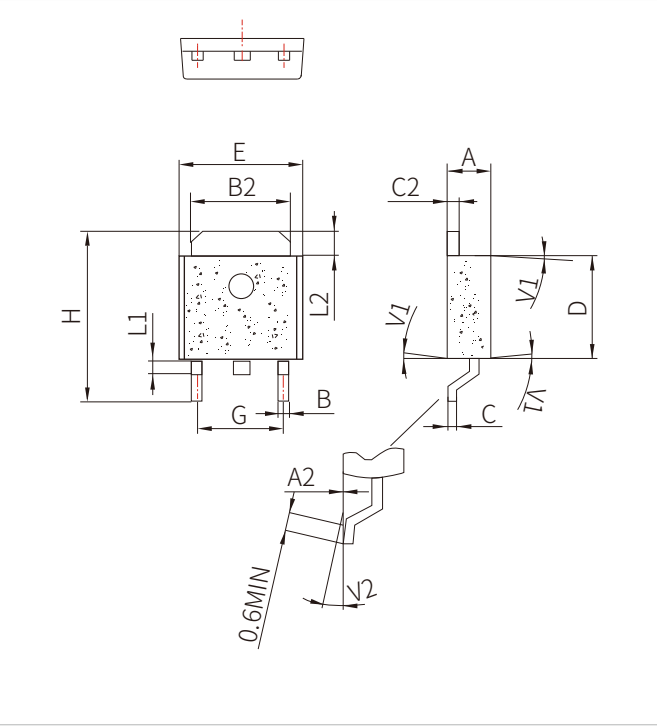


Figure 12: Gate Charge



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	0.50		1.00	0.020		0.039
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	5.30		6.40	0.209		0.252
E	6.10		6.80	0.240		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	QTY/Reel	Reel Size
SNM1R5N04D	TO-252	2500PCS	13”

Headquarters
No.3387 Shendu Road
Pujiang I&E Park
Minhang Shanghai China
201000

Hotline
400-021-5756

Web
Https://www.semiware.com

Sales Center
Tel: 86-21-3463-7458
Email: sales18@semiware.com

Customer Service
Tel: 86-21-5484-1001
Email: sales17@semiware.com

Technical Support
Tel: 86-21-3463-7654
Email: fae01@semiware.com

Complaint & Suggestions
Tel: 86-21-3463-7172
Ext: 8868
Email: cs03@semiware.com

By QR Code
Website
Wechat

To find your local partner within Semiware' s global website: www.semiware.com