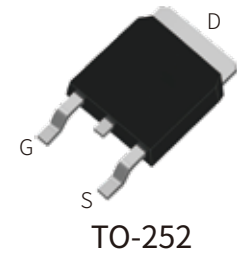


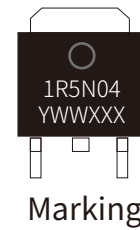
FEATURES

- | Surface-Mounted Package
- | Advanced Trench Cell design



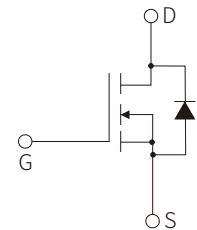
APPLICATION

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



APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003



Schematic Symbol

ABSOLUTE MAXIMUM RATINGS

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

Notes:

- * Surface Mounted on 1 in² pad area, $t \leq 10$ sec
- ** Pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$
- *** 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 _{SD} =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

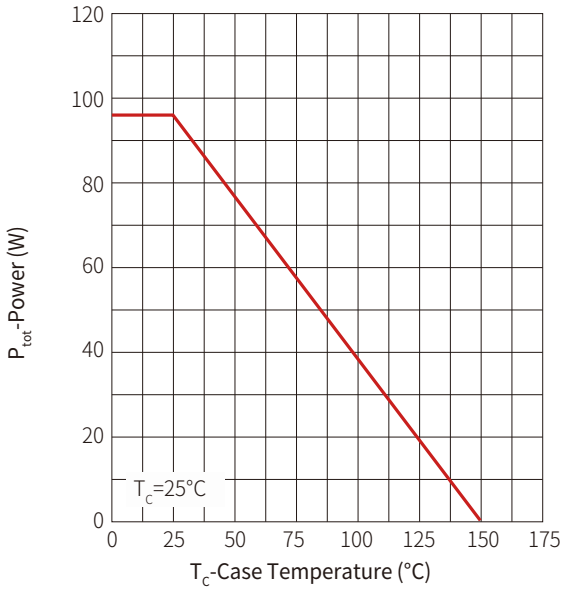


Figure2: Current Capability

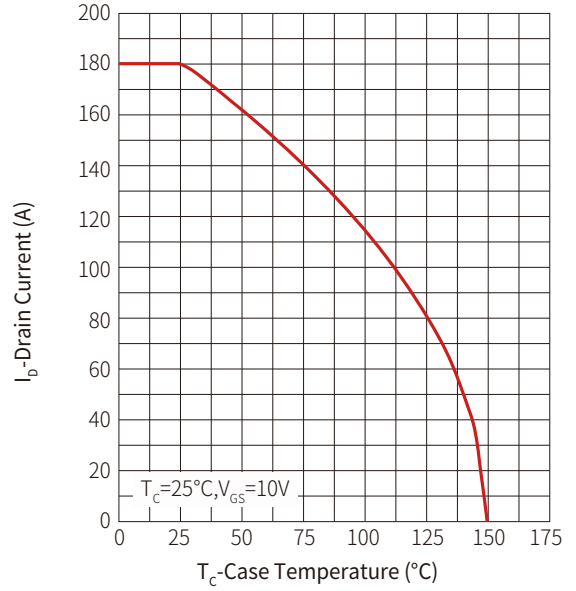


Figure3: Safe operating Area

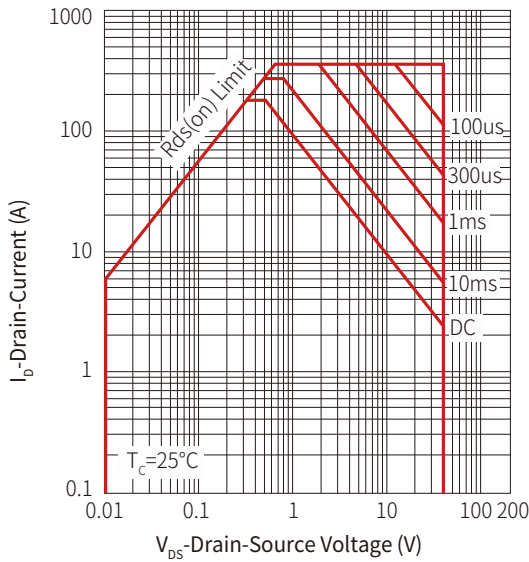


Figure 4: Transient Thermal Impedance

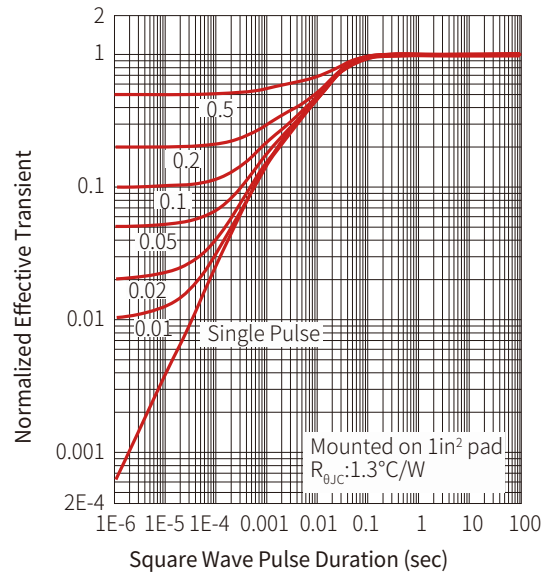


Figure 5: Output Characteristics

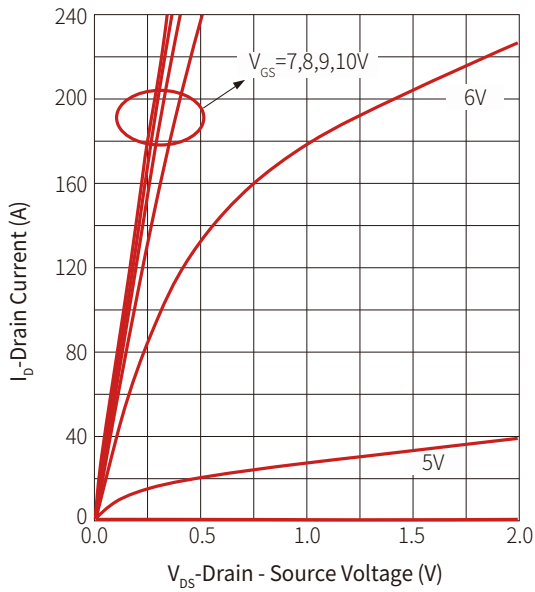


Figure 6: On Resistance

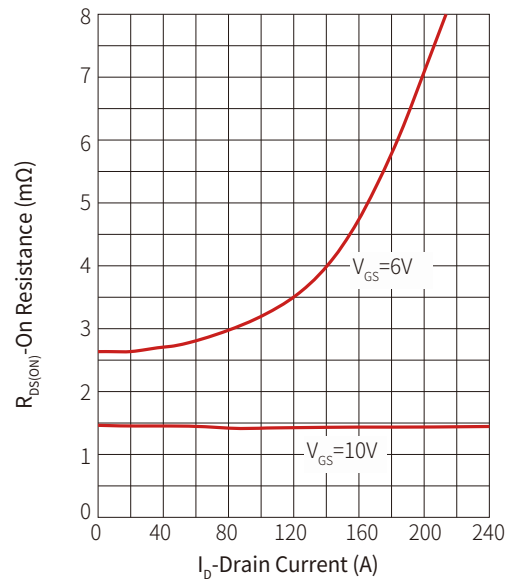


Figure 7: Transfer Characteristics

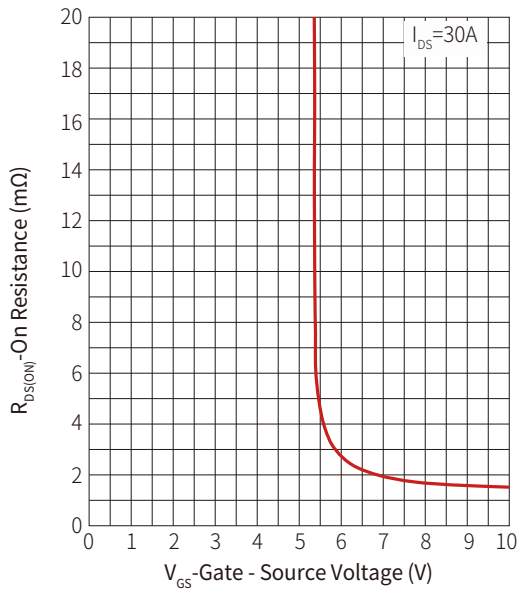


Figure 8: Normalized Threshold Voltage

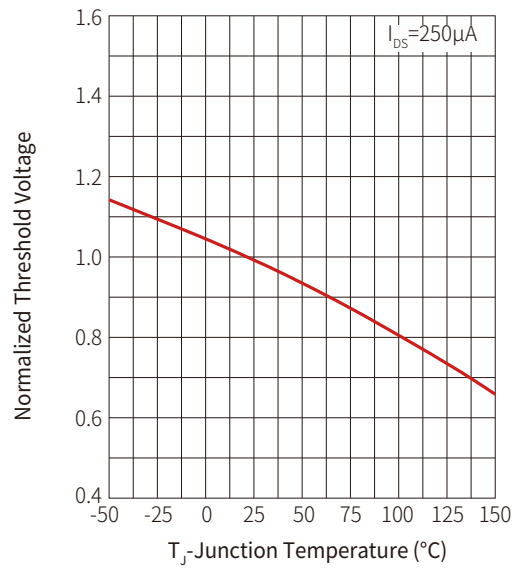


Figure 9: Normalized On Resistance

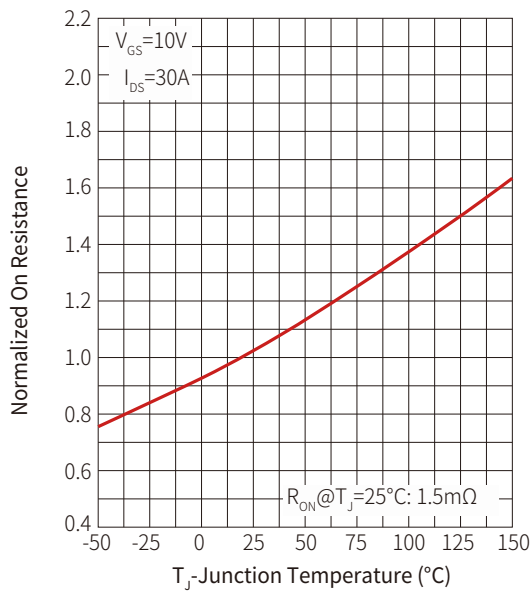


Figure 10: Diode Forward Current

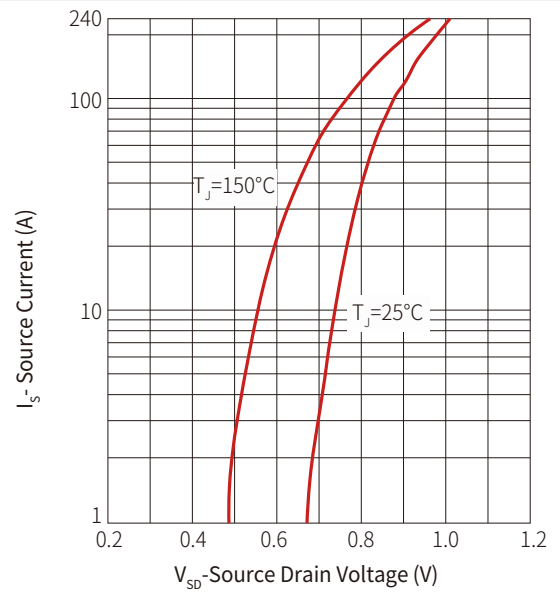


Figure 11: Capacitance

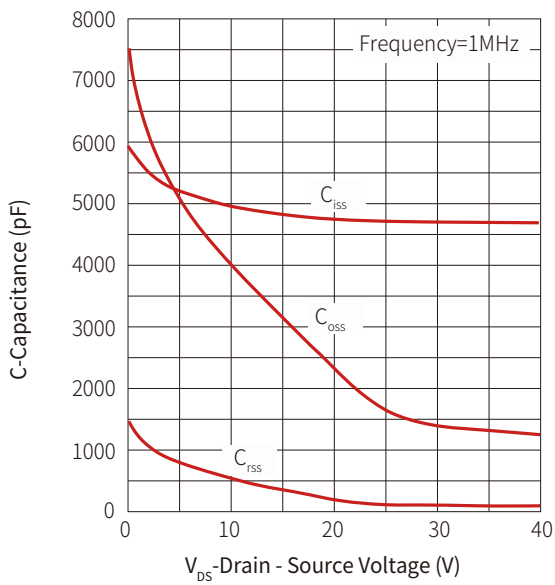
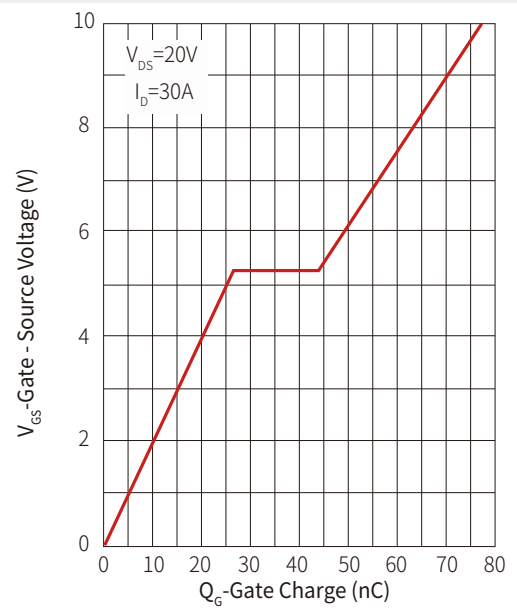
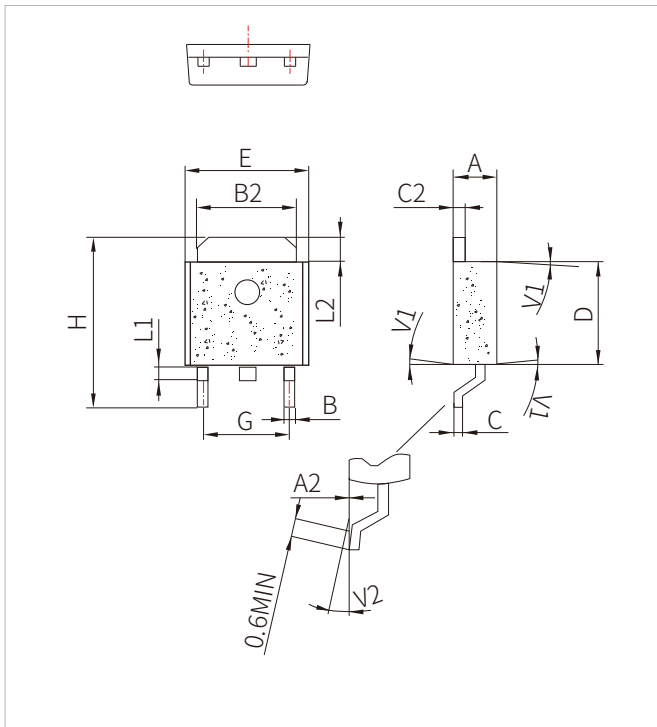


Figure 12: Gate Charge



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	0.55		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	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

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