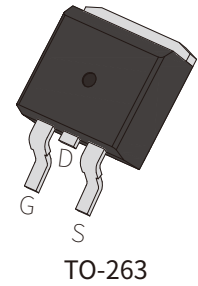


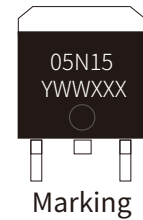
## FEATURES

- | Advanced Trench Cell Design
- | Low Thermal Resistance



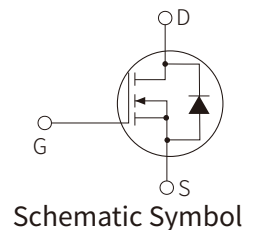
## APPLICATION

- | Motor Drivers
- | DC - DC Converter



## APPROVALS

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



## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage $T_c=25^\circ\text{C}$	$V_{DS}$	150	V
Drain Current ( Pulsed ) $T_c=25^\circ\text{C}$ $V_{GS}=10\text{V}$	$I_{DM}$	692	A
Drain Current ( DC )	$I_D$	$T_c=25^\circ\text{C}$ $V_{GS}=10\text{V}$	173
		$T_c=100^\circ\text{C}$ $V_{GS}=10\text{V}$	109
Gate-Source Voltage $T_c=25^\circ\text{C}$	$V_{GS}$	$\pm 20$	V
Drain power dissipation $T_c=25^\circ\text{C}$	$P_{tot}$	312	W
Continuous-Source Current $T_c=25^\circ\text{C}$	$I_S$	155	A
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 to 150	$^\circ\text{C}$
Single Pulsed Avalanche Energy $V_{DD}=50\text{V}$ , $L=1.0\text{mH}$	$E_{AS}$	1250	mJ
Thermal Resistance – Junction to Ambient	$R_{\theta JA}$ **	42	$^\circ\text{C}/\text{W}$
Thermal Resistance- Junction to Case	$R_{\theta JC}$ **	0.4	$^\circ\text{C}/\text{W}$

Notes:

\* Pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 2\%$

\*\* Surface Mounted on 1 in<sup>2</sup> pad area,  $t \leq 10\ \text{sec}$

\*\*\* Limited by bonding wire

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>DS</sub> =250μA	150			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250μA	2		4	V
Drain Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =120V, V <sub>GS</sub> =0V			1	uA
Gate Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±100	nA
On-State Resistance	R <sub>DS(on)</sub> <sup>a</sup>	V <sub>GS</sub> =10V, I <sub>DS</sub> =30A		4.0	4.6	mΩ
<b>Diode Characteristics</b>						
Diode Forward Voltage	V <sub>SD</sub> <sup>a</sup>	I <sub>SD</sub> =30A, V <sub>GS</sub> =0V			1.3	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>SD</sub> =30A, V <sub>GS</sub> =0V dI <sub>SD</sub> /dt=100A/μs		110		nS
Reverse Recovery Charge	Q <sub>rr</sub>			389		nC
<b>Dynamic Characteristics<sup>b</sup></b>						
Input capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =75V, Frequency = 1 MHz		8981		pF
Output capacitance	C <sub>oss</sub>			758		pF
Reverse transfer capacitance	C <sub>rss</sub>			70		pF
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DS</sub> =75V, V <sub>GEN</sub> =10V R <sub>G</sub> =3.9Ω, R <sub>L</sub> =2.4Ω, I <sub>DS</sub> =30A		22		nS
Turn-on Rise Time	t <sub>r</sub>			108		nS
Turn-Off Delay Time	t <sub>d(off)</sub>			61		nS
Turn-Off Fall Time	t <sub>f</sub>			105		nS
<b>Gate Charge Characteristics<sup>b</sup></b>						
Total Gate Charge	Q <sub>G</sub>	V <sub>DS</sub> =75V, V <sub>GS</sub> =10V, I <sub>DS</sub> =30A		131		nC
Gate-Source Charge	Q <sub>GS</sub>			45		nC
Gate-Drain Charge	Q <sub>gd</sub>			22		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 Dissipation

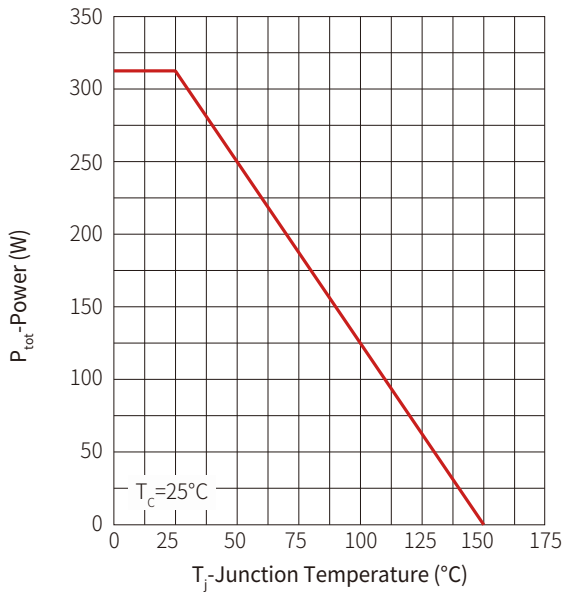


Figure2: Current Capability

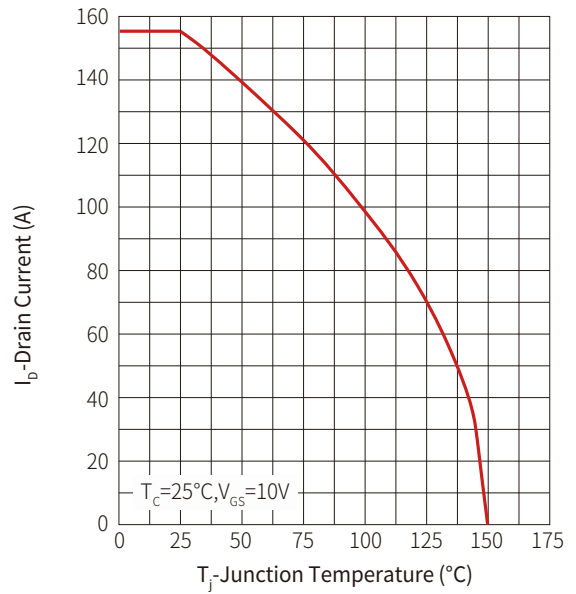


Figure3: Safe Operating Area

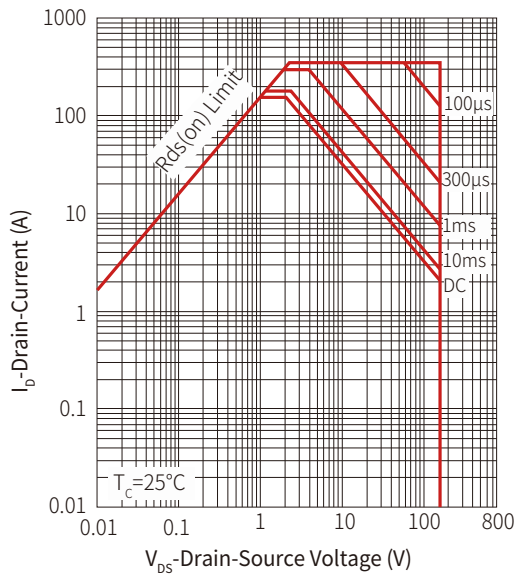
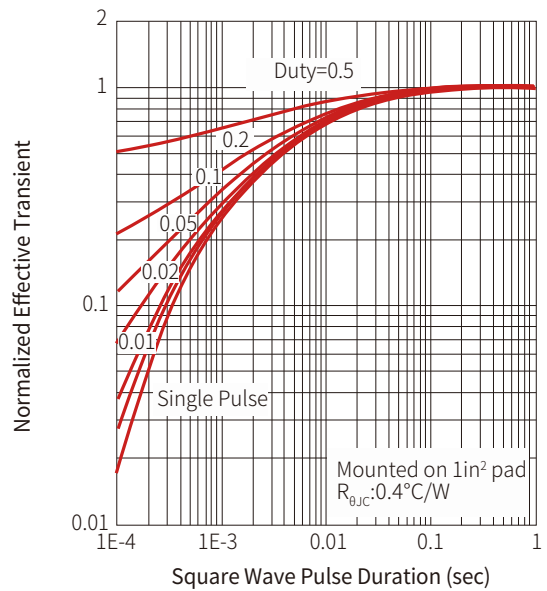
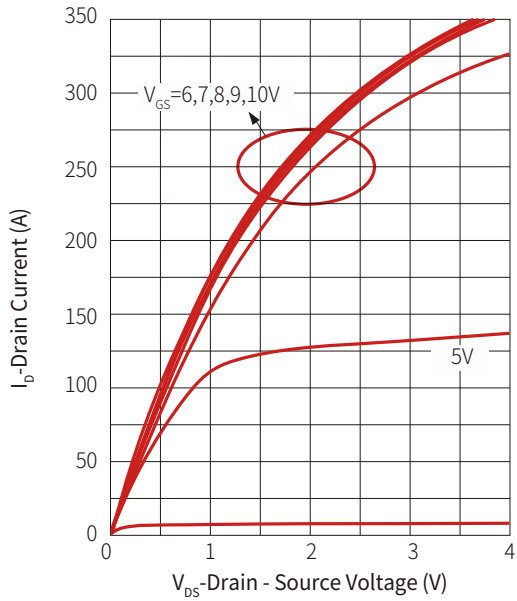


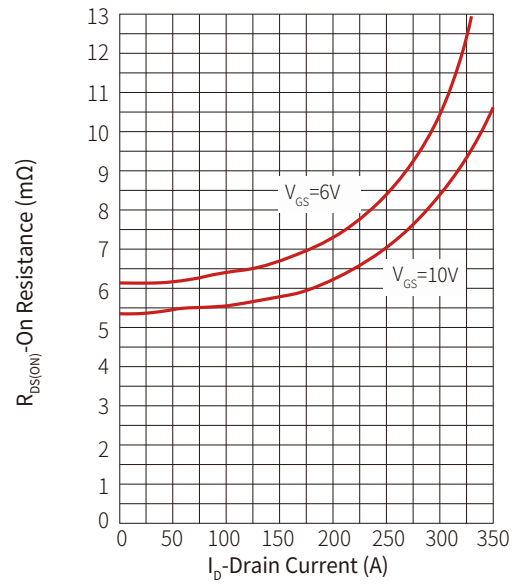
Figure 4: Transient Thermal Impedance



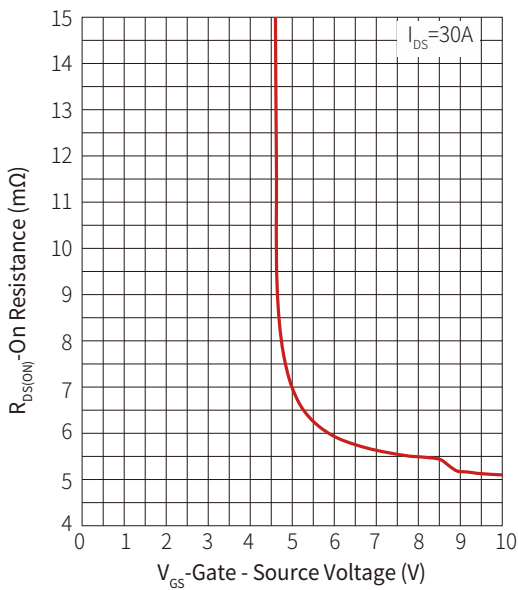
**Figure 5: Output Characteristics**



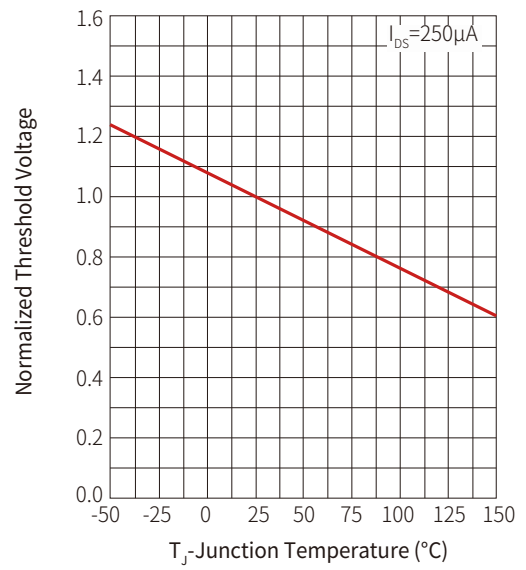
**Figure 6: Drain-Source On Resistance**



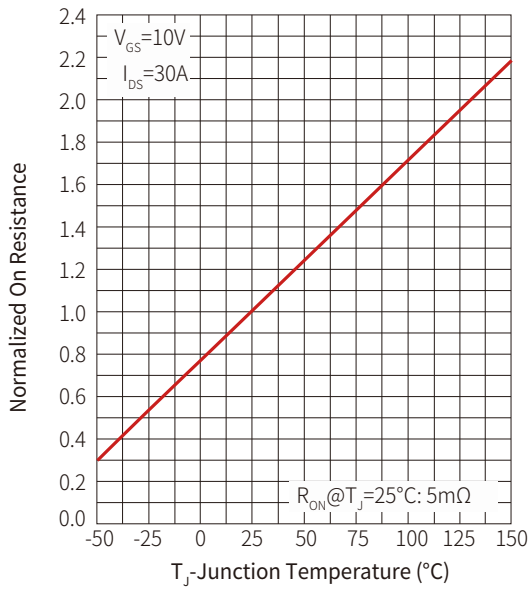
**Figure 7: Transfer Characteristics**



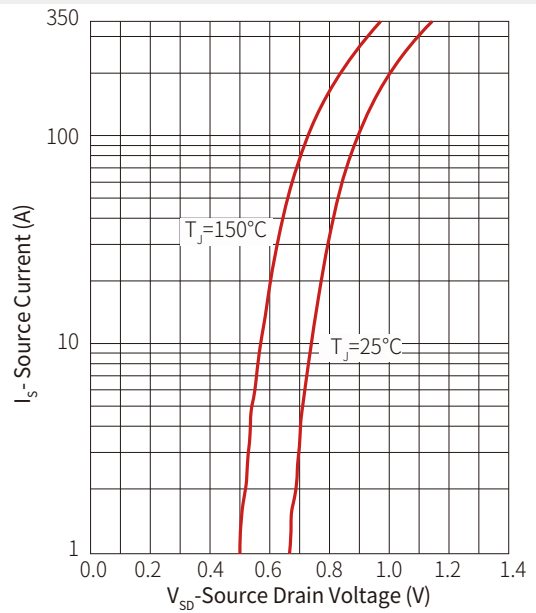
**Figure 8: Normalized Threshold Voltage**



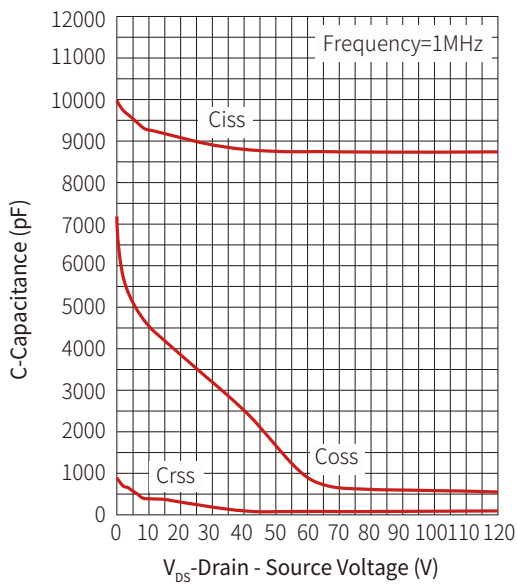
**Figure 9: Normalized On Resistance**



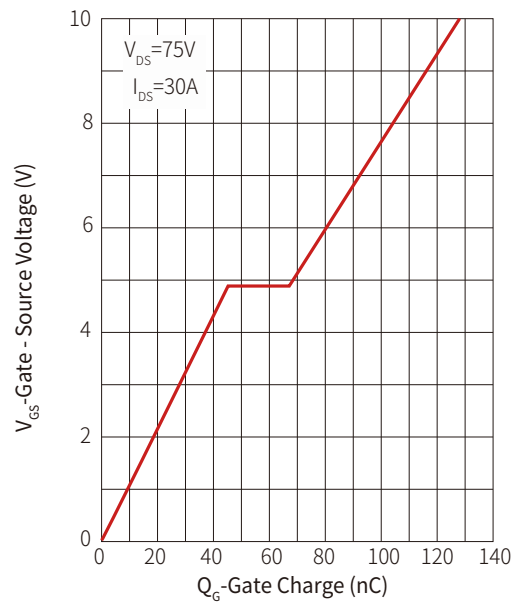
**Figure 10: Diode Forward Current**



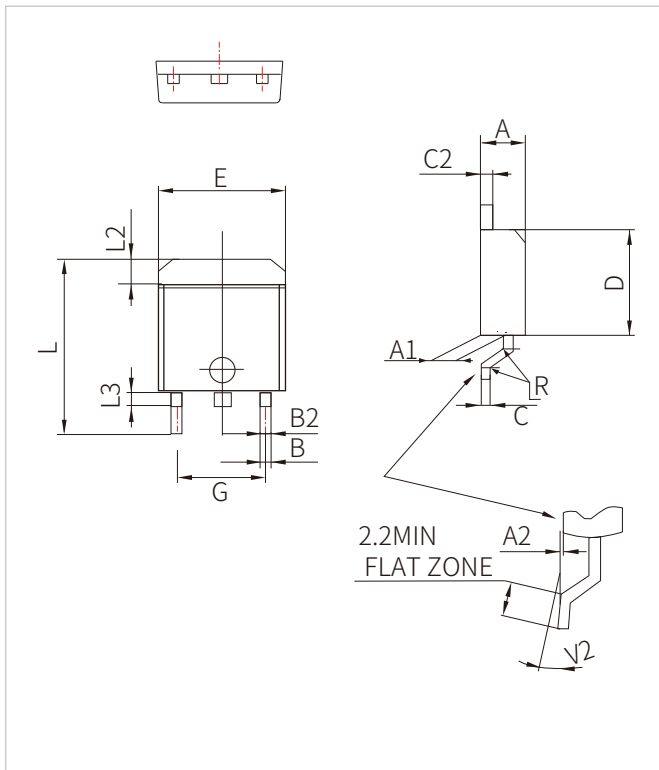
**Figure 11: Capacitance**



**Figure 12: Gate Charge**



## TO-263 PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.30		4.60	0.169		0.181
A1	2.49		2.69	0.098		0.106
A2	0.03		0.23	0.001		0.009
B	0.70		0.93	0.027		0.037
B2	1.25	1.40		0.048	0.055	
C	0.45		0.60	0.017		0.024
C2	1.21		1.36	0.047		0.054
D	8.95		9.35	0.352		0.368
E	10.00		10.28	0.392		0.405
G	4.88		5.28	0.192		0.208
L	15.00		15.85	0.590		0.624
L2	1.27		1.40	0.050		0.055
L3	1.40		1.75	0.055		0.069
R		0.40			0.016	
V2	0°		8°	0°		8°

## ORDERING INFORMATION

Part Number	Package	QTY/Reel	Reel Size
SNM05N15E	TO-263	800CS	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](mailto:sales18@semiware.com)

**Customer Service**

Tel: 86-21-5484-1001  
Email: [sales17@semiware.com](mailto:sales17@semiware.com)

**Technical Support**

Tel: 86-21-3463-7654  
Email: [fae01@semiware.com](mailto:fae01@semiware.com)

**Complaint & Suggestions**

Tel: 86-21-3463-7172  
Ext: 8868  
Email: [cs03@semiware.com](mailto:cs03@semiware.com)

**By QR Code**

Website



Wechat

To find your local partner within Semiware's global website: [www.semiware.com](http://www.semiware.com)

© 2022 Semiware Semiconductor Inc.

The content of this document has been carefully checked and understood. However, neither Semiware nor its subsidiaries assume any liability whatsoever for any errors or inaccuracies of this document and the consequences thereof. Published specifications are subject to change without notice. Product suitability for any area of application must ultimately be determined by the customer. In all cases, products must never be operated outside their published specifications. Semiware does not guarantee the availability of all published products. This disclaimer shall be governed by substantive Chinese law and resulting disputes shall be settled by the courts at the place of business of Semiware. Latest publications and a complete disclaimer can be downloaded from the Semiware website. All trademarks recognized.