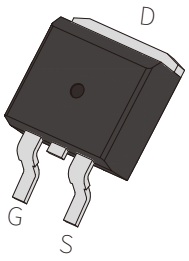
FEATURES

- Advanced Trench Cell Design
- Low Thermal Resistance



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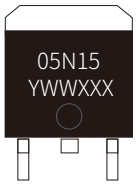
APPLICATION

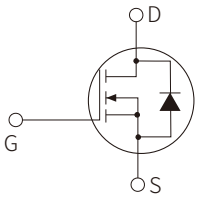
- Motor Drivers
- DC - DC Converter



Marking

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

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

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	150			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=250μA	2		4	V
Drain Leakage Current	I_{DSS}	V_{DS}=120V,V_{GS}=0V			1	uA
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		4.0	4.6	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		110		nS
Reverse Recovery Charge	Q_{rr}			389		nC
Dynamic Characteristics[b]						
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=75V, Frequency = 1 MHz		8981		pF
Output capacitance	C_{oss}			758		pF
Reverse transfer capacitance	C_{rss}			70		pF
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=75V,V_{GEN}=10V R_G= 3.9Ω, R_L=2.4Ω, I_{DS}=30A		22		nS
Turn-on Rise Time	t_r			108		nS
Turn-Off Delay Time	$t_{d(off)}$			61		nS
Turn-Off Fall Time	t_f			105		nS
Gate Charge Characteristics[b]						
Total Gate Charge	Q_g	V_{DS}=75V,V_{GS}=10V,I_{DS}=30A		131		nC
Gate-Source Charge	Q_{gs}			45		nC
Gate-Drain Charge	Q_{gd}			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

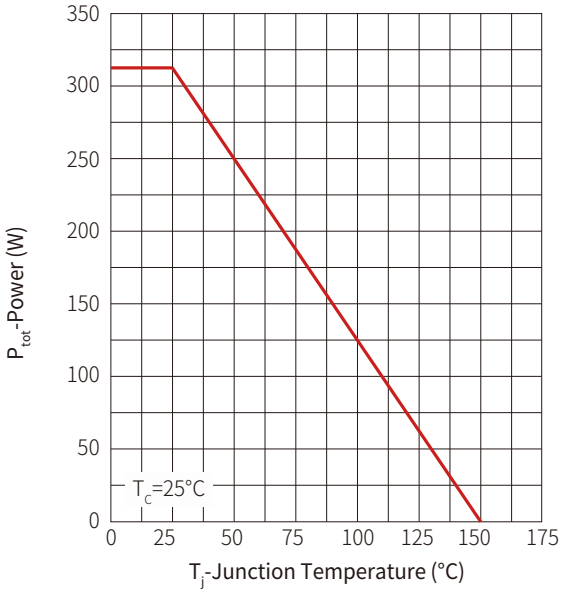


Figure2: Current Capability

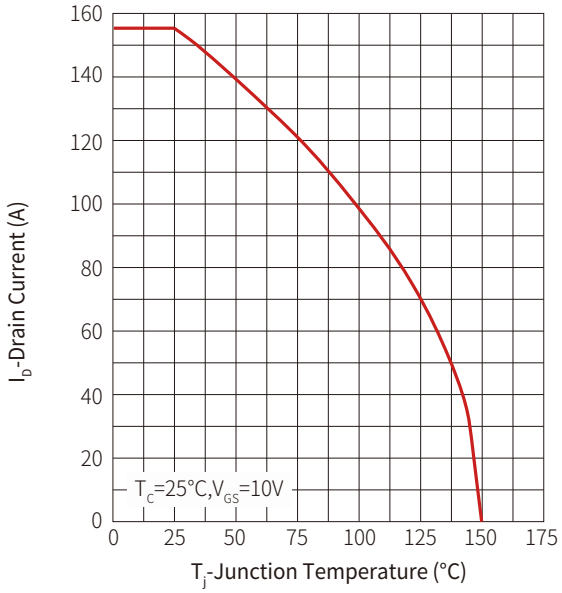


Figure3: Safe Operationg Area

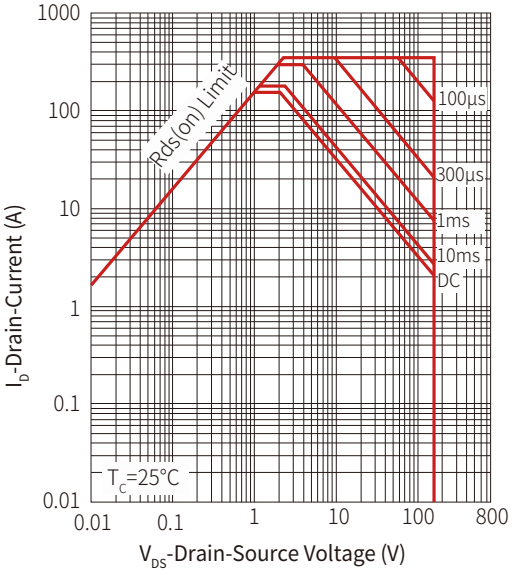


Figure 4: Transient Thermal Impedance

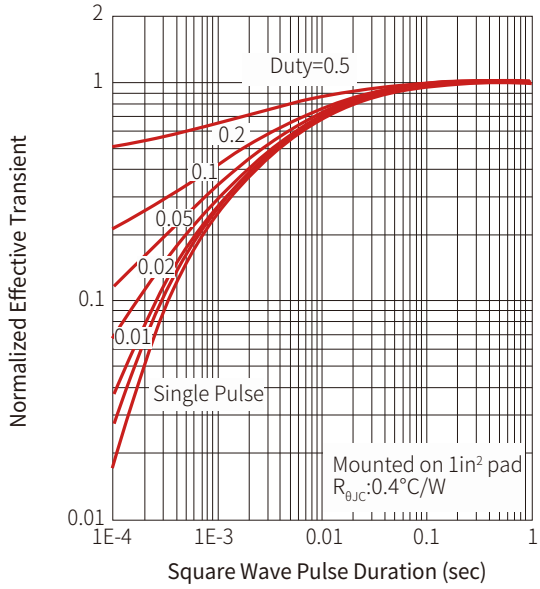


Figure 5:Output Characteristics

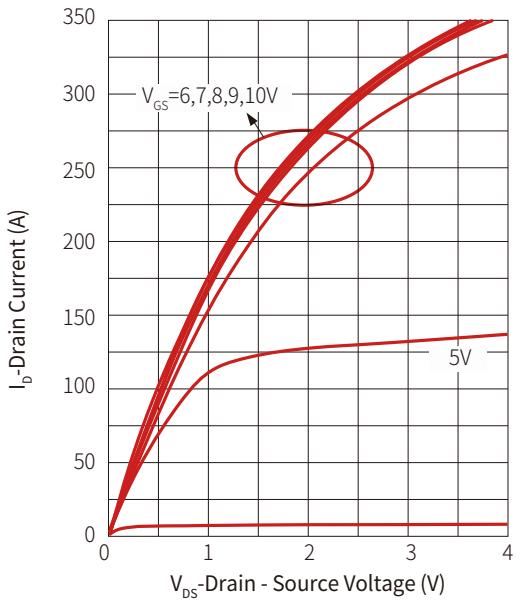


Figure 6: Drain-Source On Resistance

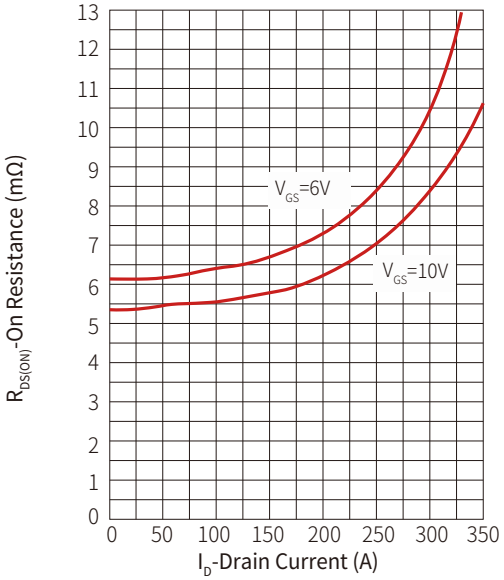


Figure 7:Transfer Characteristics

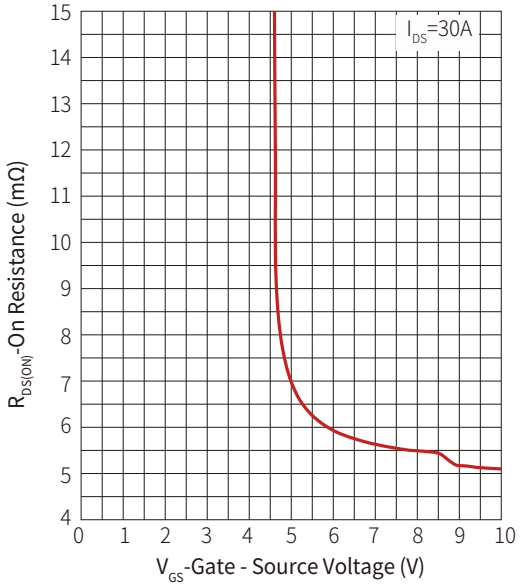


Figure 8: Normalized Threshold Voltage

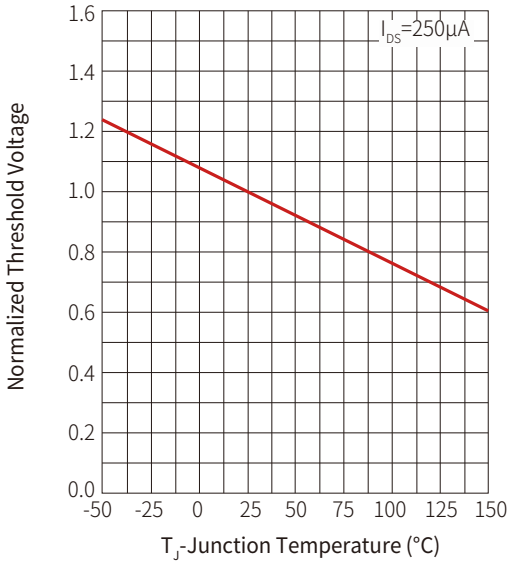


Figure 9:Normalized On Resistance

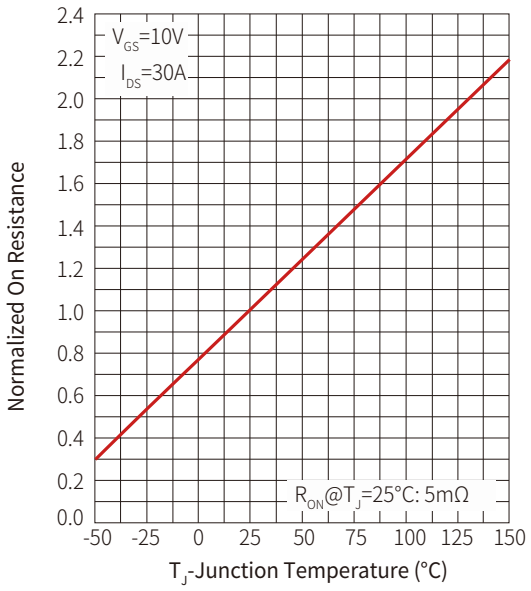


Figure 10: Diode Forward Current

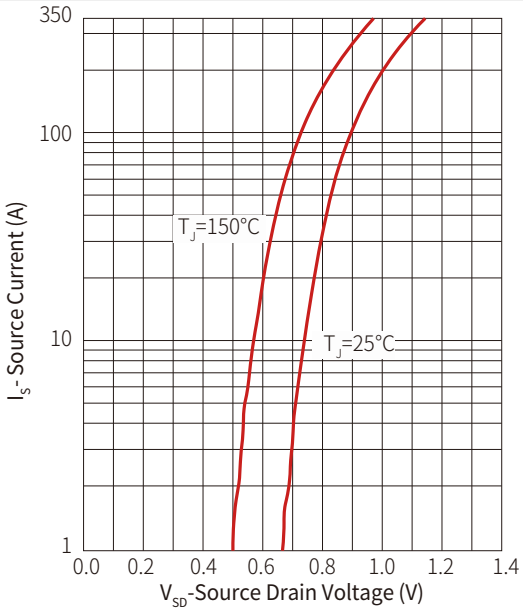


Figure 11:Capacitance

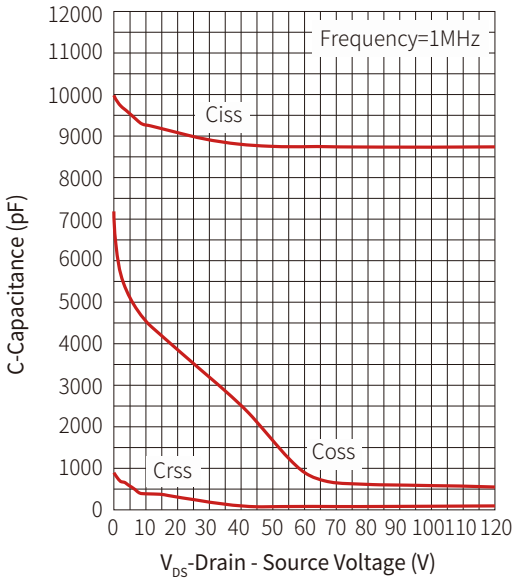
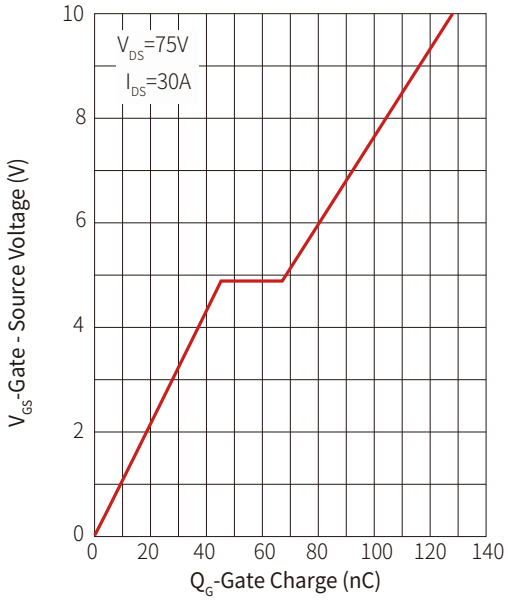
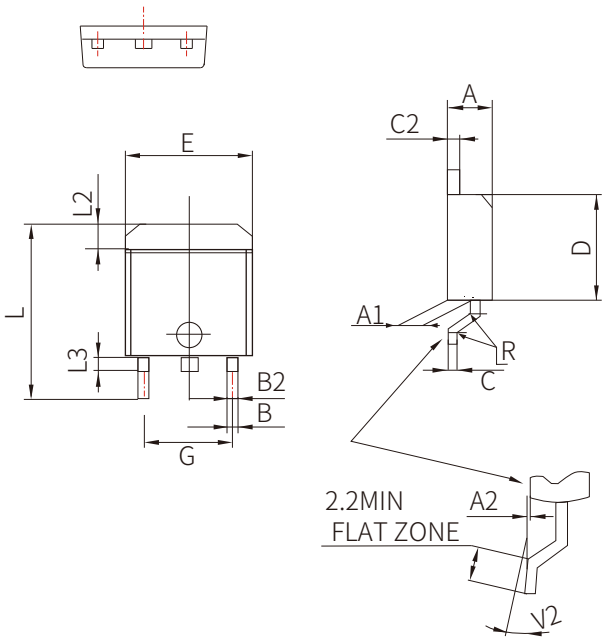


Figure 12: Gate Charge



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	9.80		10.28	0.386		0.405
G	4.88		5.28	0.192		0.208
L	14.80		15.85	0.583		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

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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