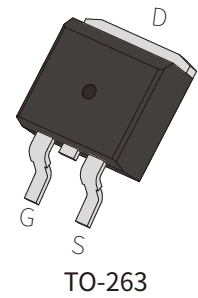


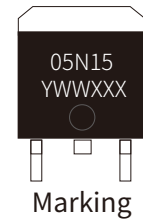
## FEATURES

- | Advanced Trench Cell Design
- | Low Thermal Resistance



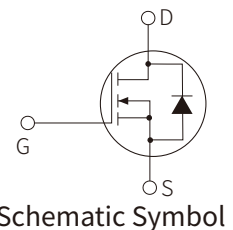
## APPLICATION

- | 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	$^\circ\text{C/W}$
Thermal Resistance- Junction to Case	$R_{\theta JC}$ **	0.4	$^\circ\text{C/W}$

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

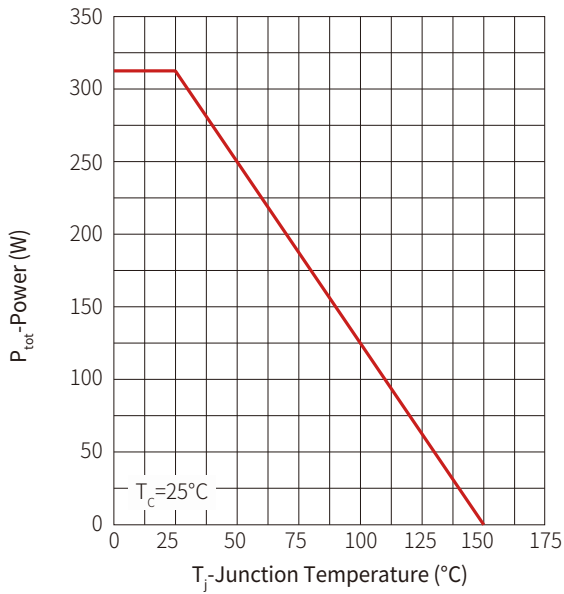


Figure2: Current Capability

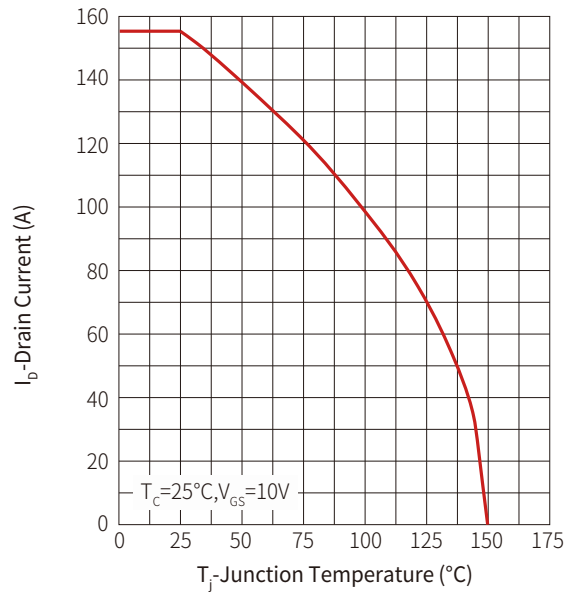


Figure3: Safe Operating Area

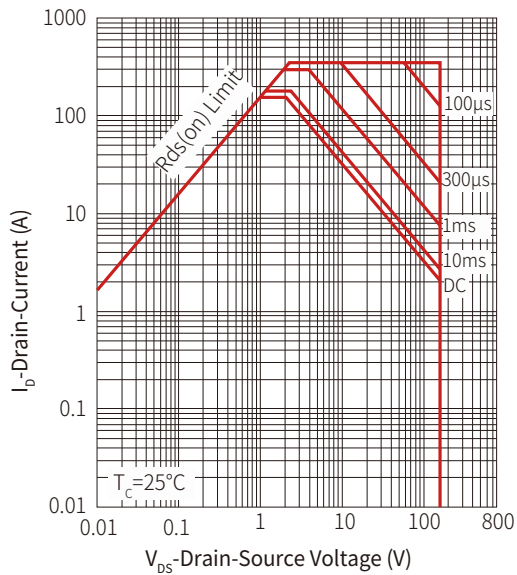
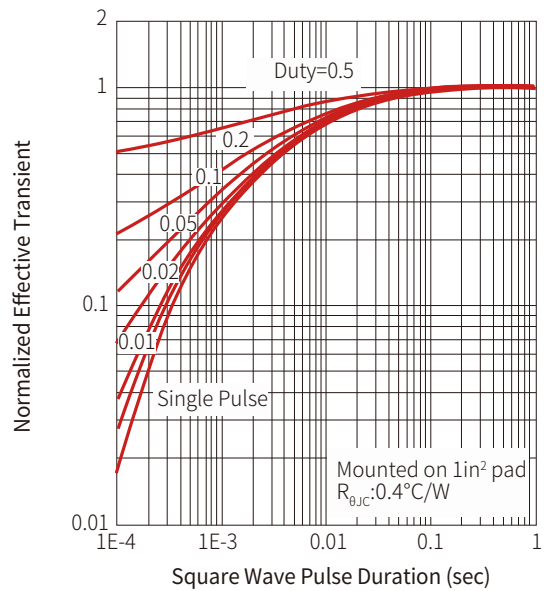
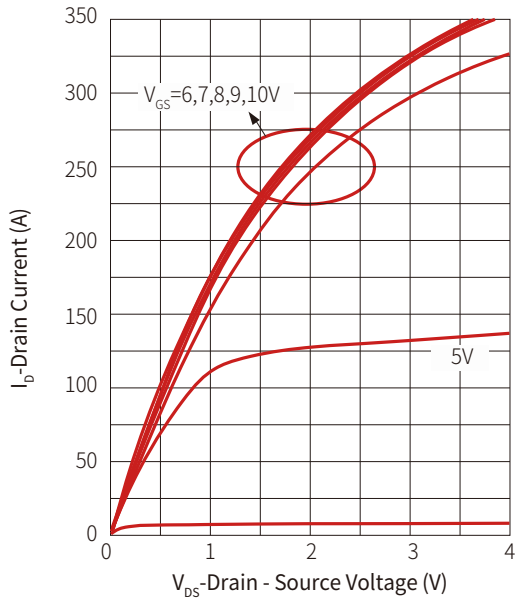


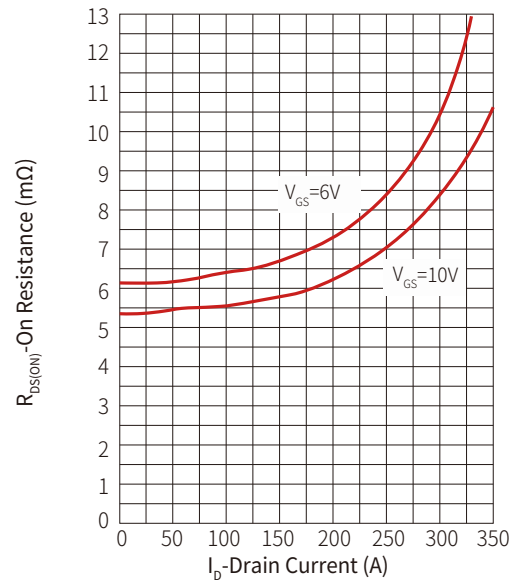
Figure 4: Transient Thermal Impedance



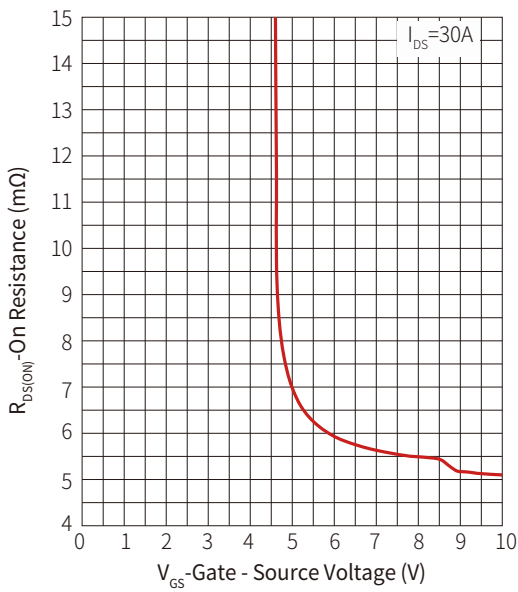
**Figure 5: Output Characteristics**



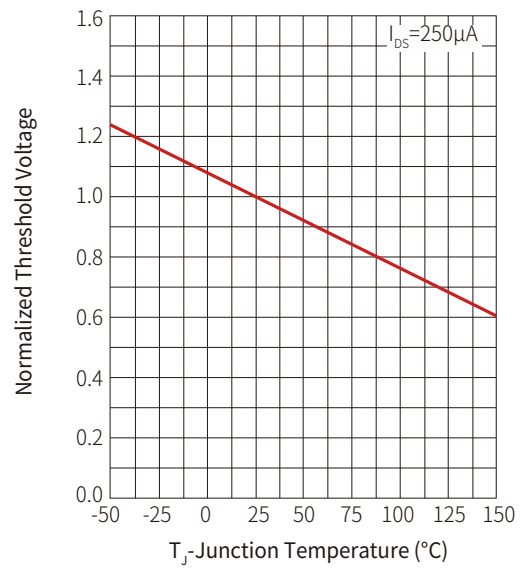
**Figure 6: Drain-Source On Resistance**



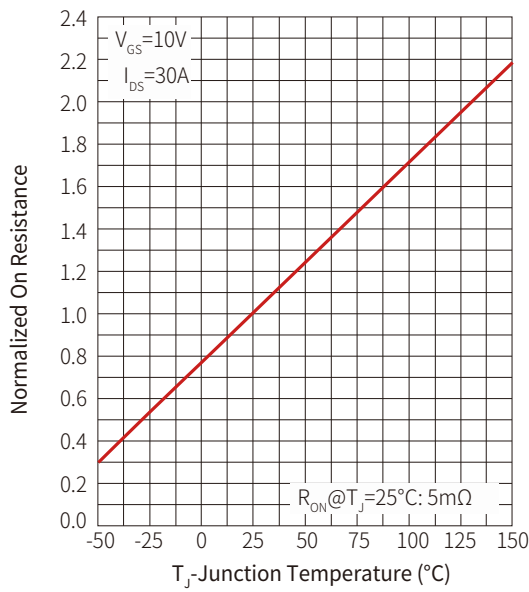
**Figure 7: Transfer Characteristics**



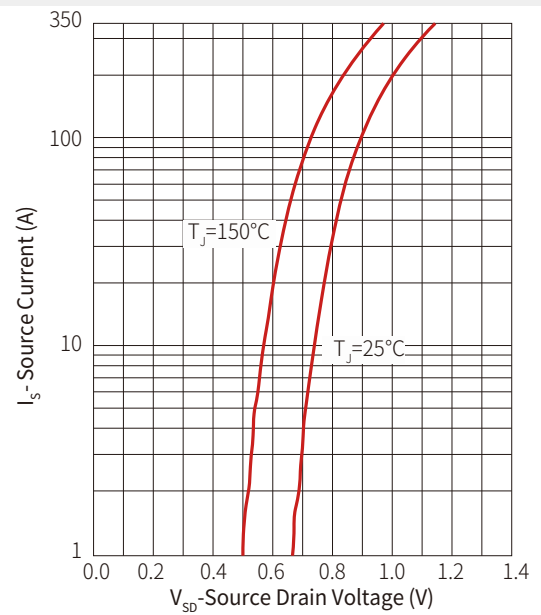
**Figure 8: Normalized Threshold Voltage**



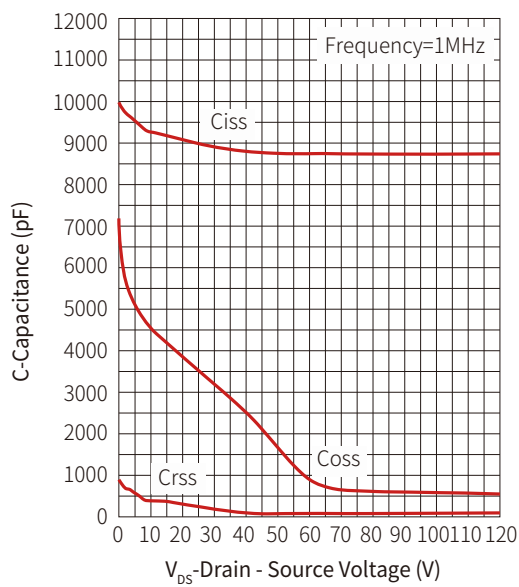
**Figure 9: Normalized On Resistance**



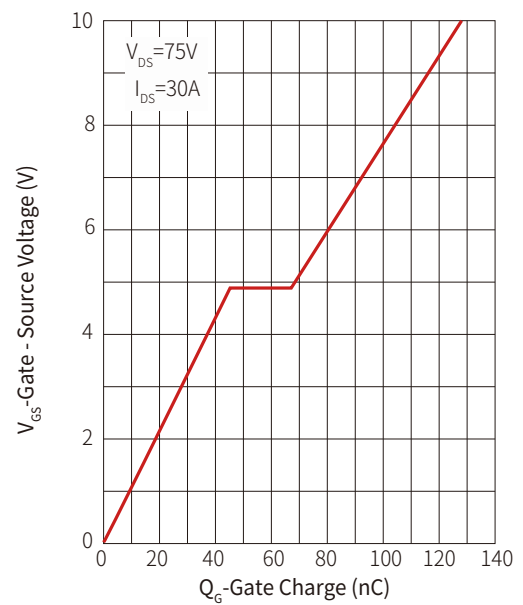
**Figure 10: Diode Forward Current**



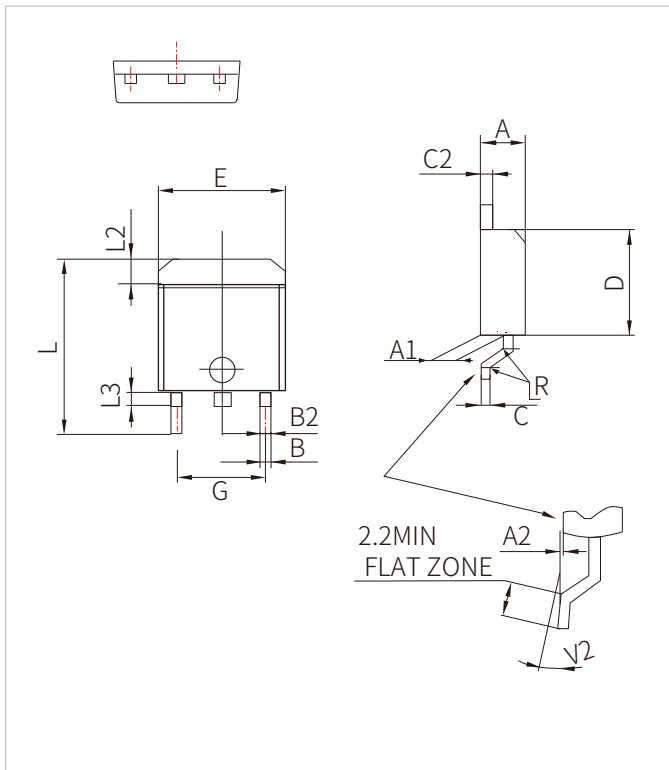
**Figure 11: Capacitance**



**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	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"

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