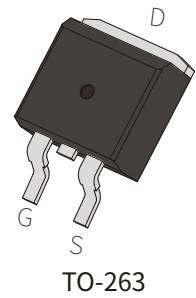


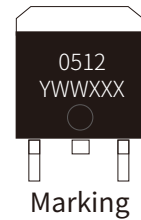
FEATURES

- | Advanced Trench Cell Design
- | Low Thermal Resistance
- | Super Trench



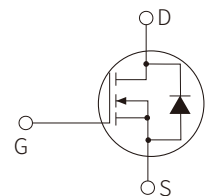
APPLICATION

- | Motor Drivers
- | DC - DC Converter



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}	120	V
Drain Current (Pulsed) $T_c=25^\circ\text{C}$ $V_{GS}=10\text{V}$	I_{DM}^{***}	208	A
Drain Current (DC)	I_D^*	$T_c=25^\circ\text{C}$ $V_{GS}=10\text{V}$	120
		$T_c=100^\circ\text{C}$ $V_{GS}=10\text{V}$	60
Gate-Source Voltage $T_c=25^\circ\text{C}$	V_{GS}	± 20	V
Total Power Dissipation $T_c=25^\circ\text{C}$	P_{tot}^*	135	W
Diode Forward Current $T_c=25^\circ\text{C}$	I_S	120	A
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^\circ\text{C}$
Single Pulsed Avalanche Energy $V_{DD}=50\text{V}$, $L=1\text{mH}$	E_{AS}^*	722	mJ
Thermal Resistance - Junction to Ambient	$R_{\theta JA}^*$	62.5	$^\circ\text{C}/\text{W}$
Thermal Resistance- Junction to Case	$R_{\theta JC}^*$	3.5	$^\circ\text{C}/\text{W}$

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	120			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _{DS} =250μA	1		3	V
Zero Gate Voltage Source Current	I _{DSS}	V _{DS} =96V, V _{GS} =0V			1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Drain-Source On-State Resistance	R _{DS(on)} ^a	V _{GS} =10V, I _D =30A		5.0	5.5	mΩ
		V _{GS} =4.5V, I _D =20A		7.0	7.5	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 dI _{SD} /dt=100A/μs		89		nS
Reverse Recovery Charge	Q _{rr}			271		nC
Dynamic Characteristics^b						
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =60V, Frequency = 1 MHz		4233		pF
Output capacitance	C _{oss}			563		pF
Reverse transfer capacitance	C _{rss}			40		pF
Turn-on Delay Time	t _{d(on)}	V _{DS} =60V, V _{GEN} =10V R _G =3.9Ω, R _L =2Ω, I _{DS} =30A		12		nS
Turn-on Rise Time	t _r			27		nS
Turn-Off Delay Time	t _{d(off)}			55		nS
Turn-Off Fall Time	t _f			38		nS
Gate Charge Characteristics^b						
Total Gate Charge	Q _g	V _{DS} =60V, V _{GS} =10V, I _{DS} =30A		71		nC
Gate-Source Charge	Q _{gs}			17		nC
Gate-Drain Charge	Q _{gd}			16		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

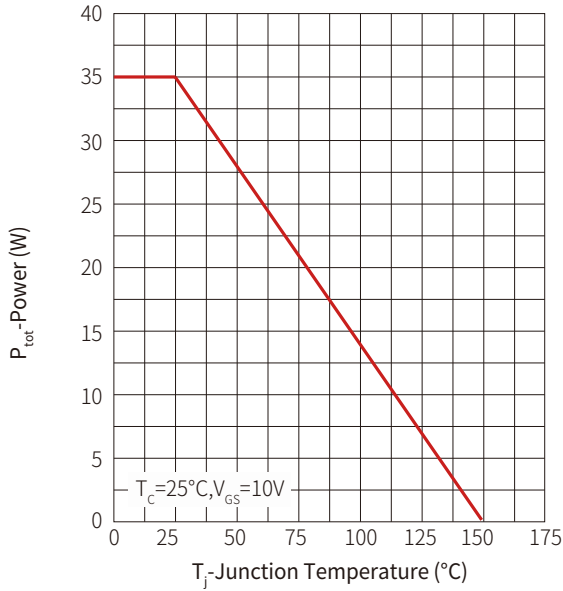


Figure2: Current Capability

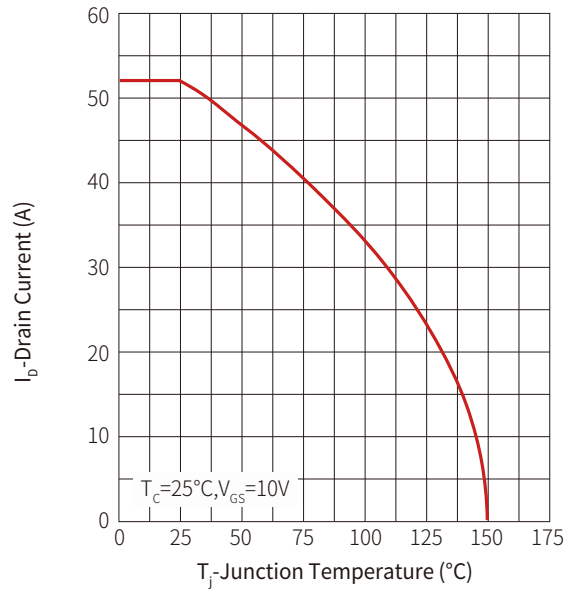


Figure3: Safe Operating Area

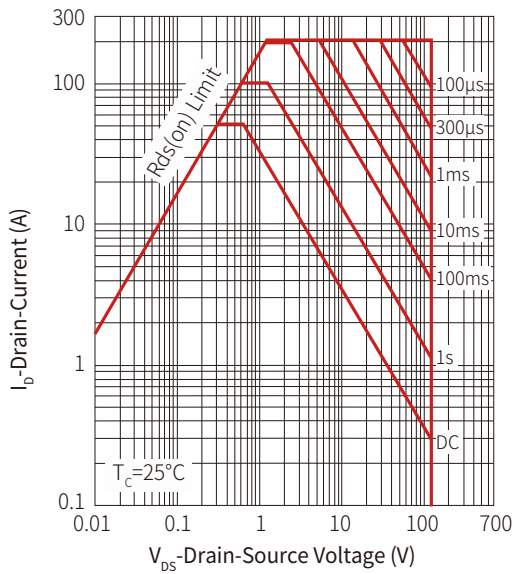


Figure 4: Transient Thermal Impedance

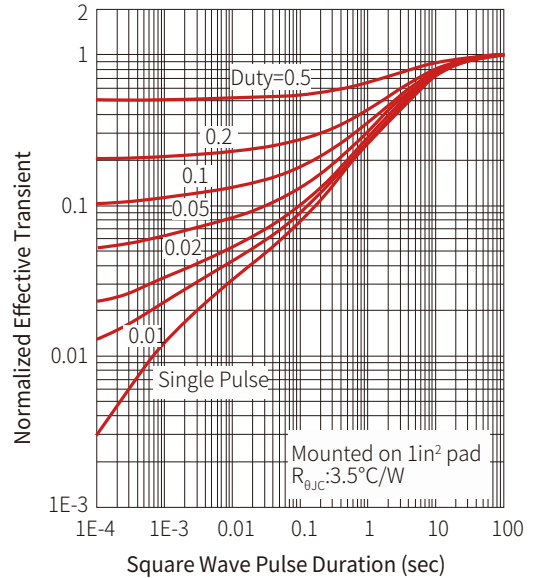


Figure 5: Output Characteristics

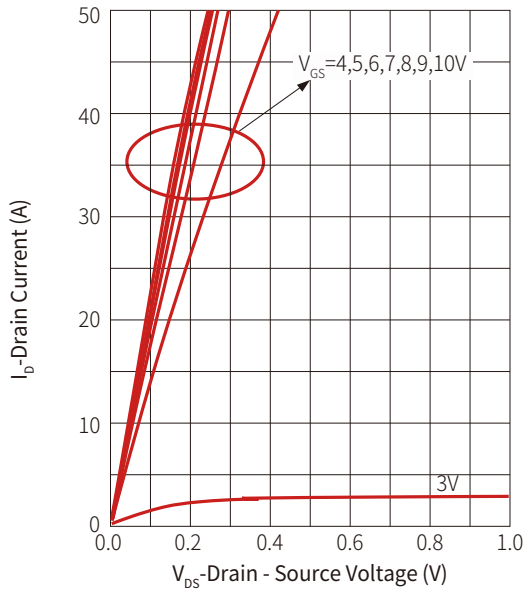


Figure 6: On Resistance

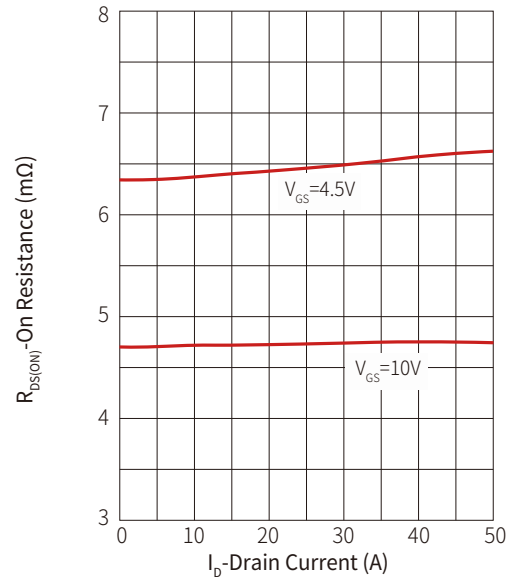


Figure 7: Transfer Characteristics

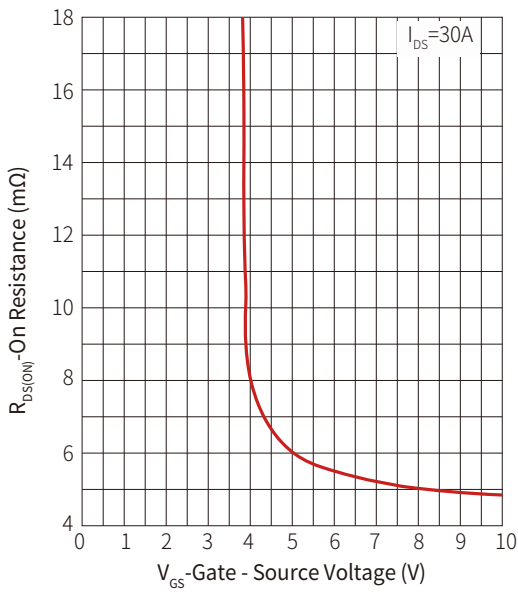


Figure 8: Normalized Threshold Voltage

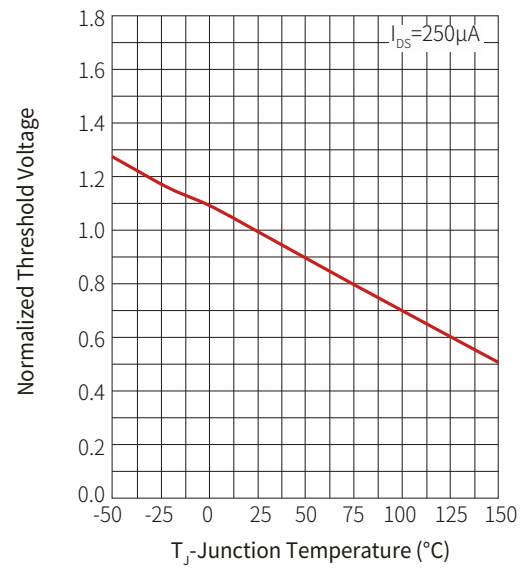


Figure 9: Normalized On Resistance

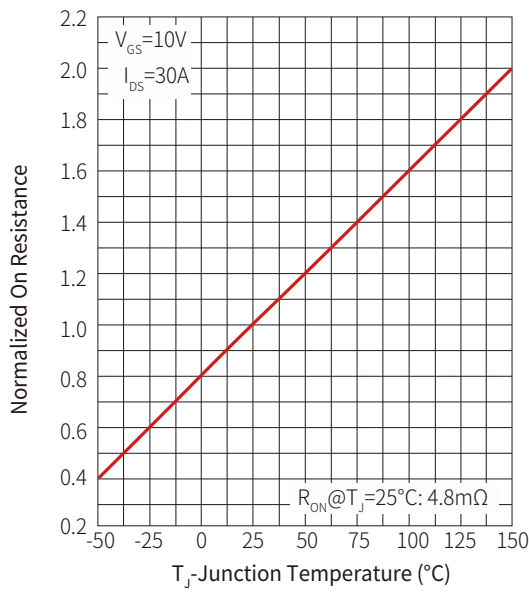


Figure 10: Diode Forward Current

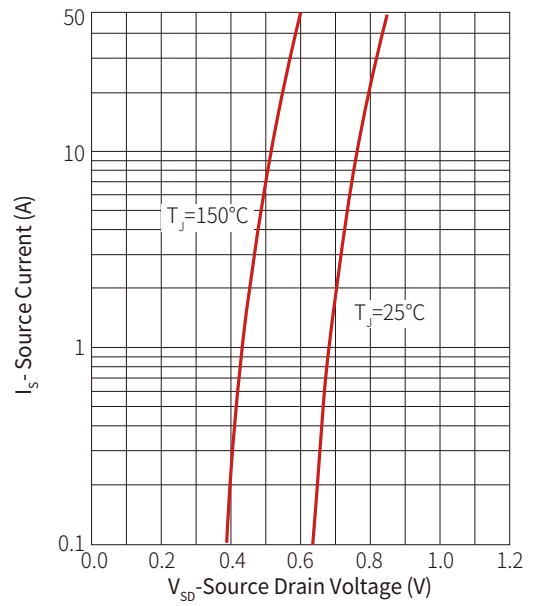


Figure 11: Capacitance

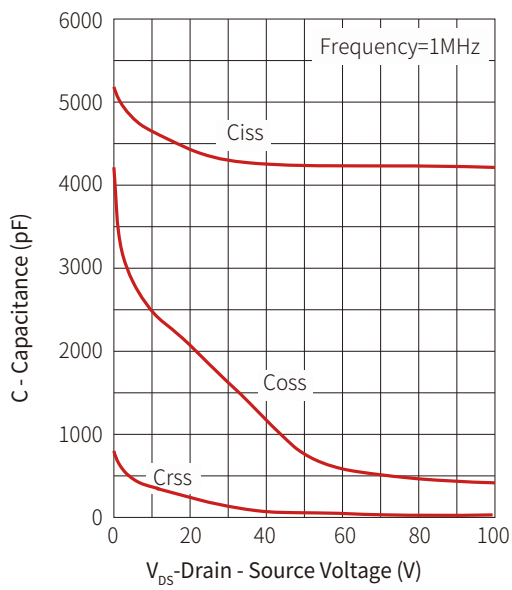
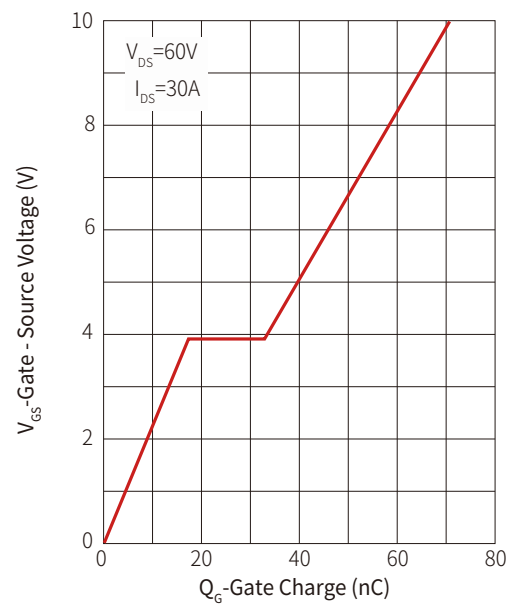
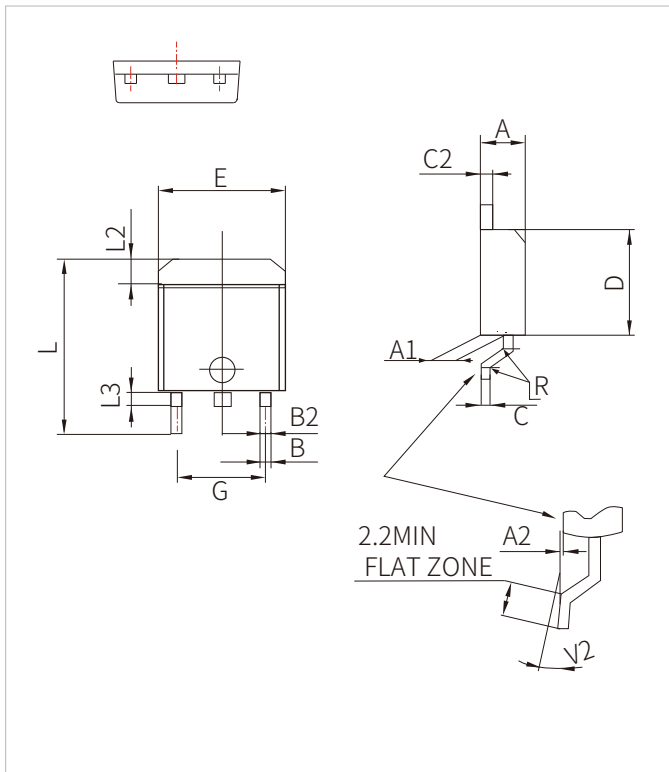


Figure 12: Gate Charge



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
SNM0512E	TO-263	800PCS	13"

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