

FEATURES

| $R_{DS(ON)}$ Typ = 4.5m Ω @ $V_{GS} = 10V$

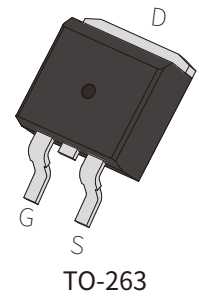
| $R_{DS(ON)}$ Typ = 5.7m Ω @ $V_{GS} = 4.5V$

| Advanced Trench Technology

| Excellent $R_{DS(ON)}$ and Low Gate Charge

| 100% UIS TESTED!

| 100% ΔV_{ds} TESTED!

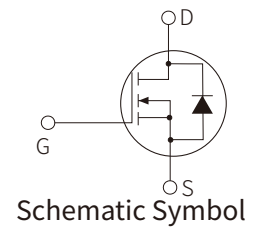


APPLICATION

| Load Switch

| PWM Application

| Power Management



APPROVALS

RoHS | Compliance with 2011/65/EU

HF | Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit	
Drain-to-Source Voltage	V_{DS}	100	V	
Pulsed Drain Current ⁽¹⁾	I_{DM}	440	A	
Continuous Drain Current	I_D	$T_c = 25^\circ C$	110	A
		$T_c = 100^\circ C$	66	A
Power Dissipation $T_c = 25^\circ C$	P_D	125	W	
Gate-to-Source Voltage	V_{GS}	± 20	V	
Single Pulsed Avalanche Energy ⁽²⁾	E_{AS}	182	mJ	
Junction & Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$	
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1	$^\circ C/W$	

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =250μA	100			V
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Drain Leakage Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1.0	μA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2	1.7	2.3	V
Static Drain-Source ON-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =30A		4.5	5.8	mΩ
		V _{GS} =4.5V, I _D =20A		5.7	7.4	mΩ
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =50V, f = 1MHz		2819		pF
Output capacitance	C _{oss}			790		pF
Reverse transfer capacitance	C _{rss}			16		pF
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =0 to 10V I _D =20A		45		nC
Gate-Source Charge	Q _{gs}			7		nC
Gate Drain("Miller") Charge	Q _{gd}			10		nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =50V, V _{GS} =10V R _{GEN} = 3Ω, I _D =20A		12		nS
Turn-on Rise Time	t _r			18		nS
Turn-Off Delay Time	t _{d(off)}			49		nS
Turn-Off Fall Time	t _f			38		nS
Drain-Source Diode Characteristics and Max Ratings						
Drain to Source Diode Forward Voltage	V _{SD}	I _S =30A, V _{GS} =0V			1.2	V
Body Diode Reverse Recovery Time	t _{rr}	I _F =20A di/dt = 100A/us		50		nS
Body Diode Reverse Recovery Charge	Q _{rr}			41		nC
Maximum Continuous Drain to Source Diode Forward Current	I _S				110	A
Maximum Pulsed Drain to Source Diode Forward Current	I _{SM}				440	A

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. E_{AS} condition: Starting T_J=25°C, V_{DD}=50V, V_G=10V, R_G=25ohm, L=0.5mH, I_{AS}=27A
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 0.5%

PARAMETER CHARACTERISTIC CURVE

Fig 1: Output Characteristics

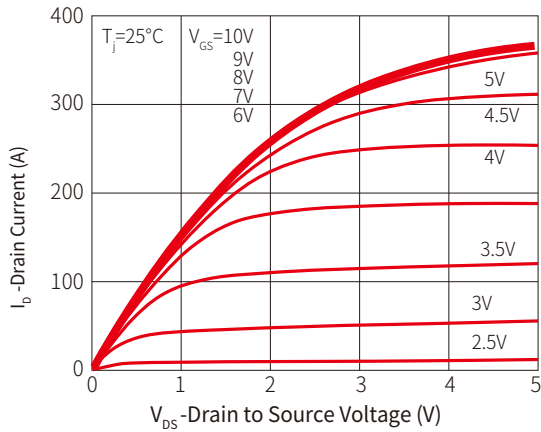


Figure 2: Typical Transfer Characteristics

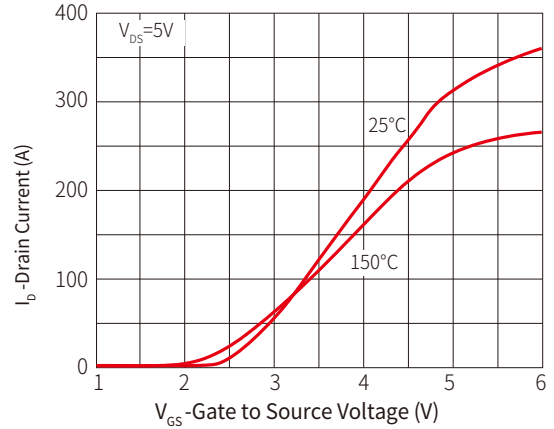


Figure 3: Capacitance Characteristics

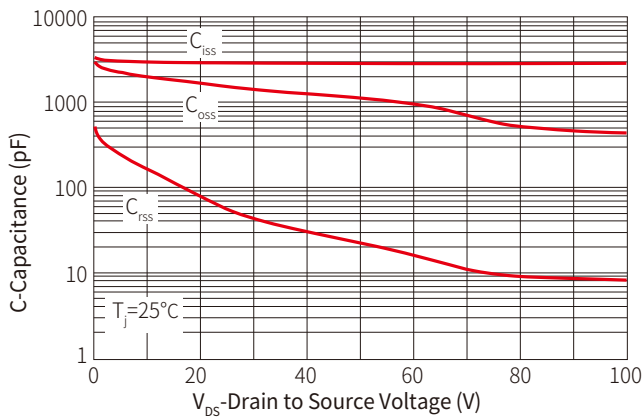


Figure 4: Gate Charge

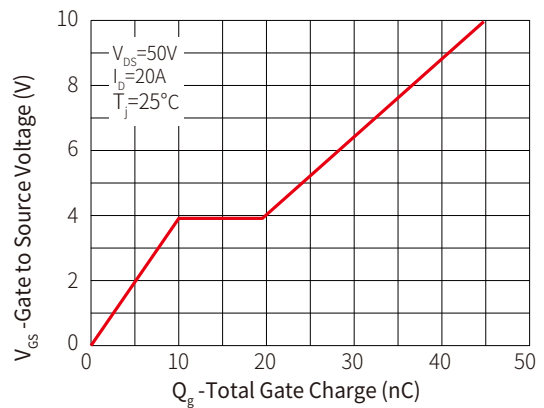


Figure 5: On-Resistance vs Gate to Source Voltage

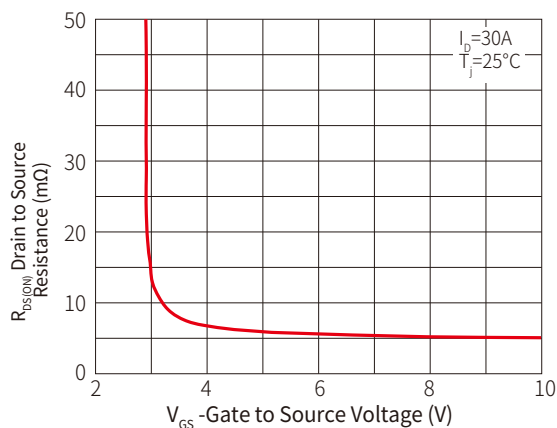


Figure 6: Normalized On-Resistance

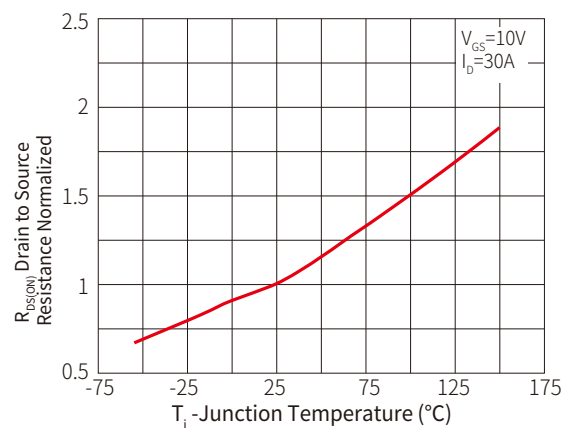


Figure 7: $R_{DS(on)}$ VS Drain Current

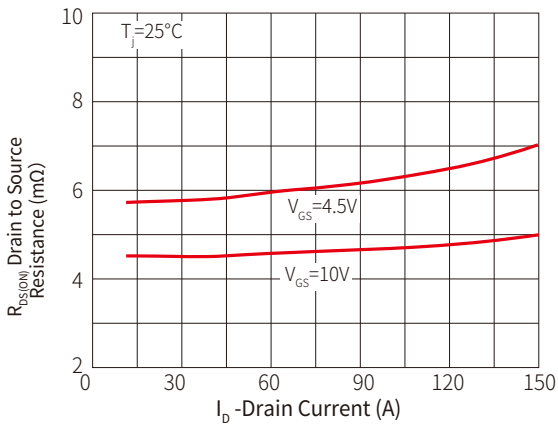


Figure 8: Forward characteristics of reverse diode

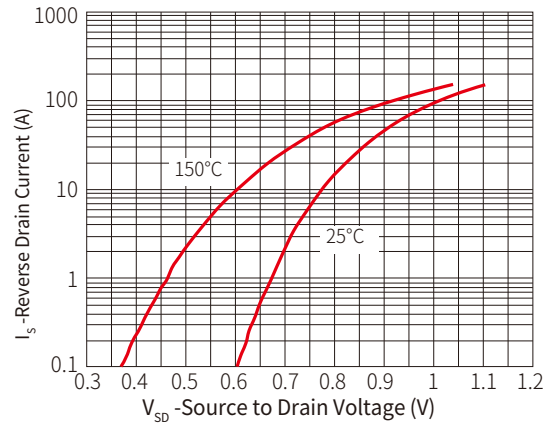


Figure 9: Normalized breakdown voltage

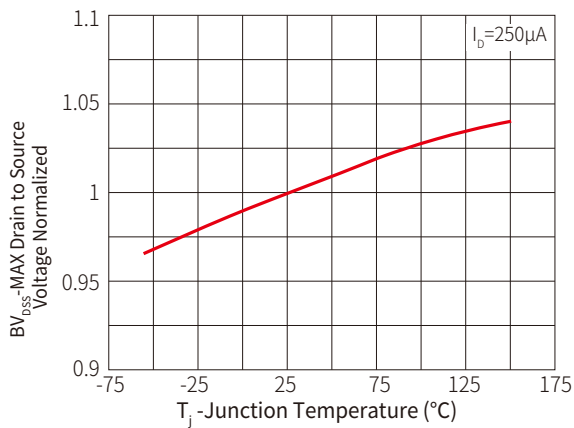


Figure 10: Normalized Threshold voltage

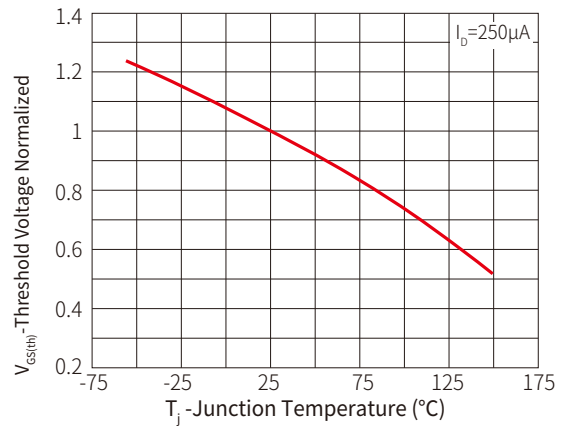


Figure 11: Current dissipation

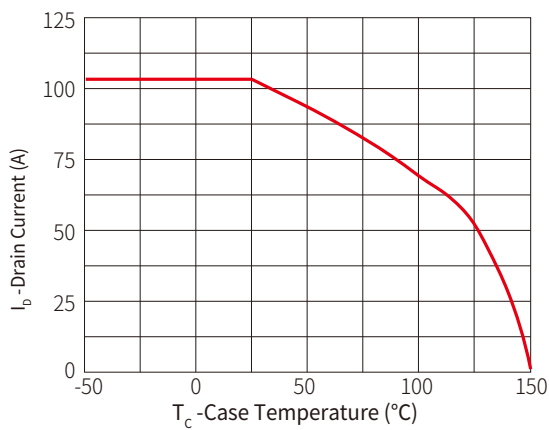


Figure 12: Power dissipation

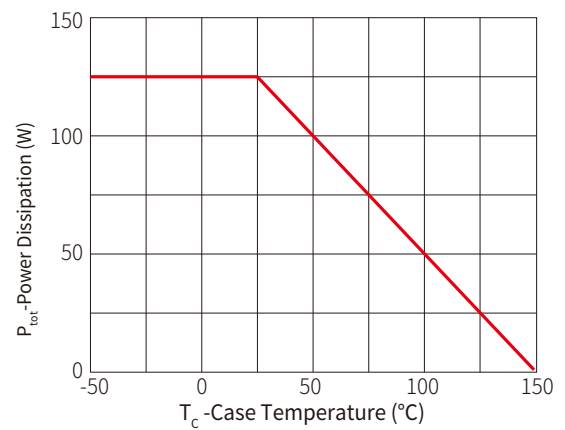
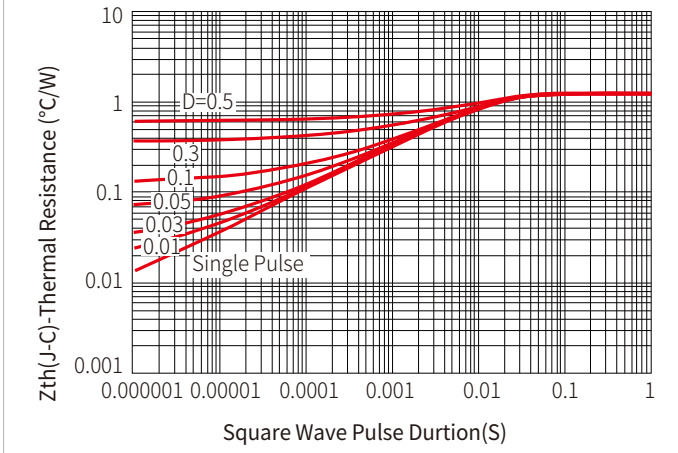
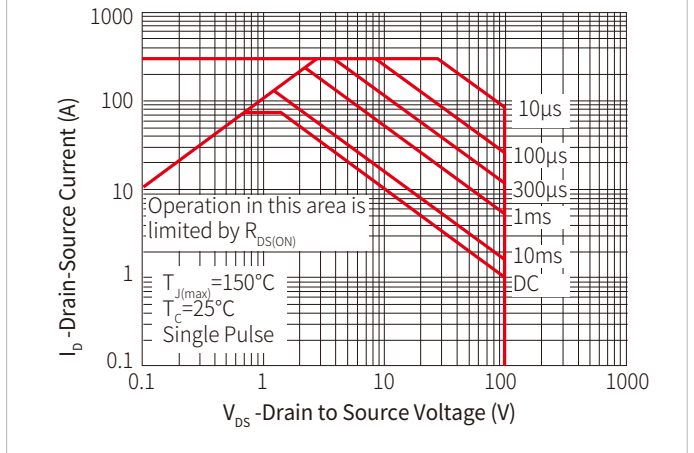
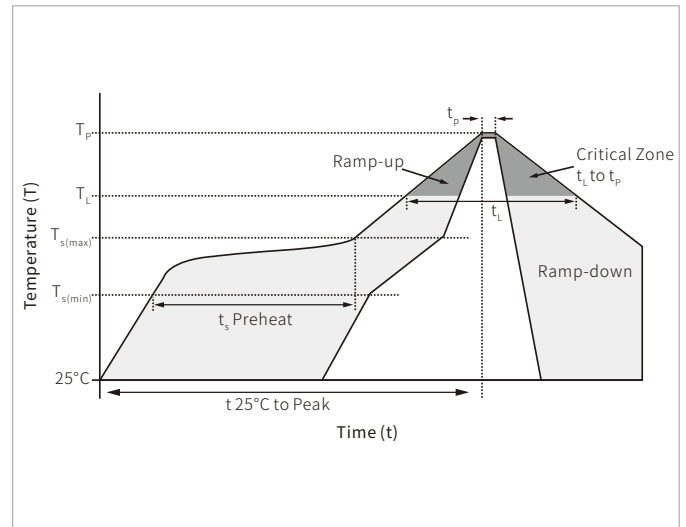


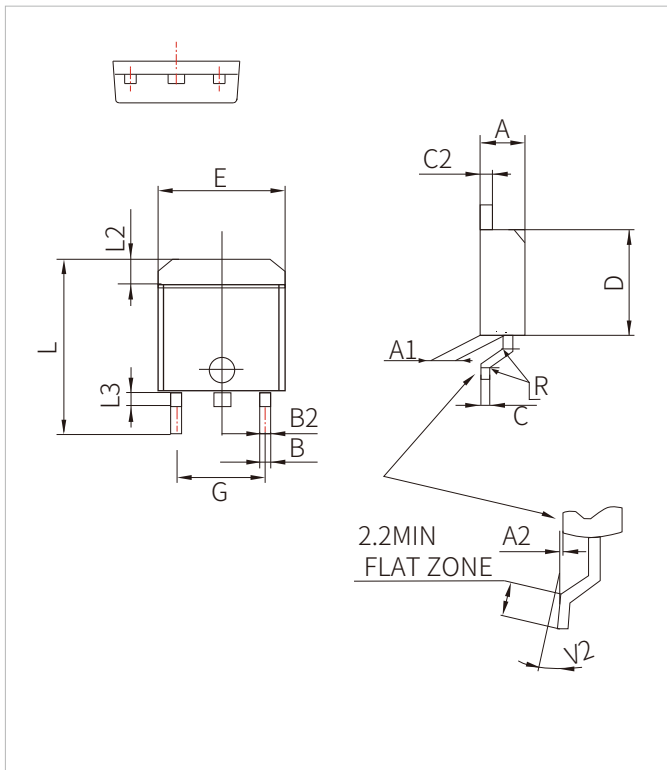
Figure 13: Maximum Transient Thermal Impedance

Figure 14: Safe Operation Area


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C




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	Component Package	Marking	QTY/Reel	Reel Size
SNM110N10E	TO-263	 110N10 XXXX	800PCS	13"

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By QR Code

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