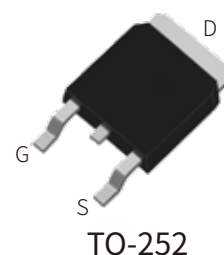


FEATURES

| Advanced trench cell design

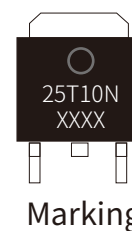
| Low Thermal Resistance



APPLICATION

| Motor drivers

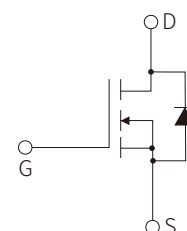
| DC - DC Converter



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}	100	V
Drain Current (Pulsed) $T_c=25^{\circ}\text{C}$ $V_{GS}=10\text{V}$		I_{DM}^{***}	220	A
Drain Current (DC)	$T_c=25^{\circ}\text{C}$ $V_{GS}=10\text{V}$	I_D^*	60	A
	$T_c=100^{\circ}\text{C}$ $V_{GS}=10\text{V}$		38	A
Gate-Source Voltage $T_c=25^{\circ}\text{C}$		V_{GS}	± 20	V
Drain power dissipation $T_c=25^{\circ}\text{C}$		P_{tot}^*	73	W
Junction Temperature		T_J	150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 to 150	$^{\circ}\text{C}$
Thermal Resistance –Junction to Ambient		$R_{\theta JA}^{**}$	41.6	$^{\circ}\text{C/W}$
Thermal Resistance- Junction to Case		$R_{\theta JC}^{**}$	1.4	$^{\circ}\text{C/W}$

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 ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_{DS}=250\mu A$	100			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	1.4	1.85	2.4	V
Zero Gate Voltage Source Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1	μA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
Drain-Source On-State Resistance	$R_{DS(on)}^a$	$V_{GS}=10V, I_{DS}=30A$		11	14	m Ω
		$V_{GS}=4.5V, I_{DS}=30A$		14.5	18.5	m Ω
Diode Characteristics						
Diode Forward Voltage	V_{SD}^a	$I_{SD}=20A, V_{GS}=0V$			1.4	V
Reverse Recovery Time	t_{rr}	$I_{SD}=20A$ $dI_{SD}/dt=100A/\mu s$		68		nS
Reverse Recovery Charge	Q_{rr}			92		nC
Dynamic Characteristics ^b						
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=50V,$ Frequency = 1 MHz		2780		pF
Output capacitance	C_{oss}			506		pF
Reverse transfer capacitance	C_{rss}			35		pF
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=50V, V_{GEN}=10V$ $R_G=3.9\Omega, R_L=2.5\Omega,$ $I_{DS}=20A$		10		nS
Turn-on Rise Time	t_r			21		nS
Turn-Off Delay Time	$t_{d(off)}$			45		nS
Turn-Off Fall Time	t_f			32		nS
Gate Charge Characteristics ^b						
Total Gate Charge	Q_g	$V_{DS}=50V, V_{GS}=10V, I_{DS}=20A$		60		nC
Gate-Source Charge	Q_{gs}			11		nC
Gate-Drain Charge	Q_{gd}			16		nC

Notes:

a : Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Capability

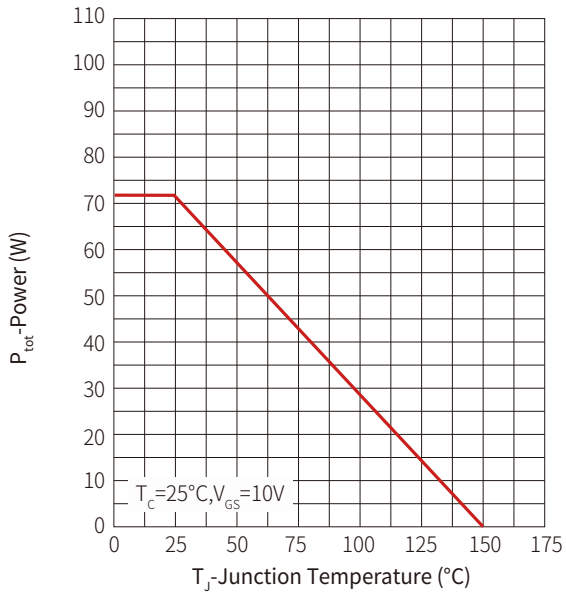


Figure2: Current Capability

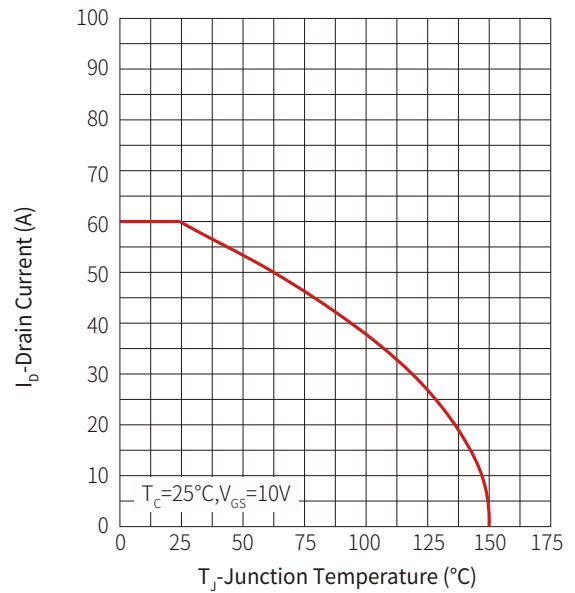


Figure3: Safe operating Area

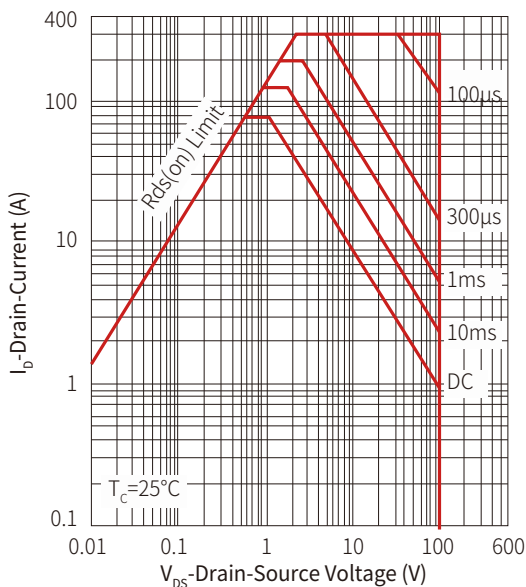


Figure 4: Transient Thermal Impedance

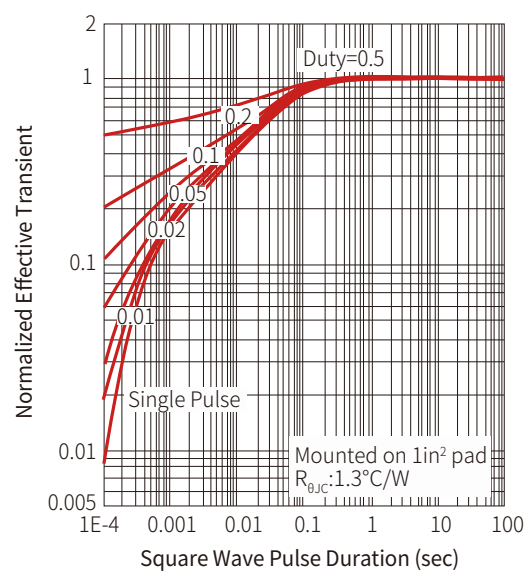


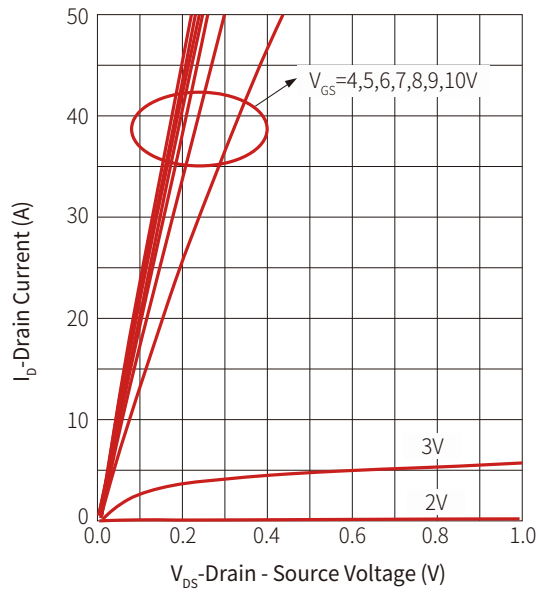
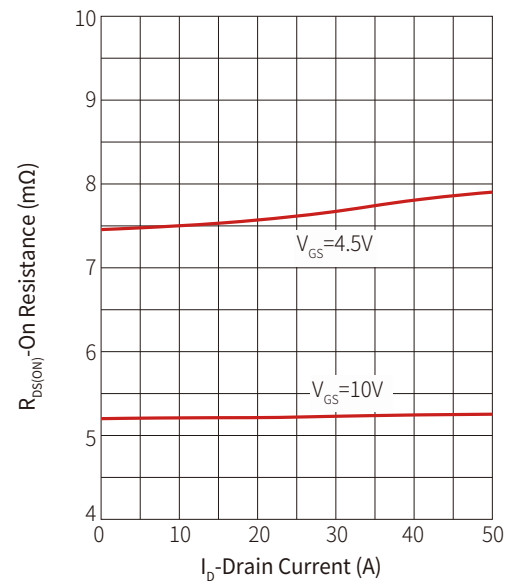
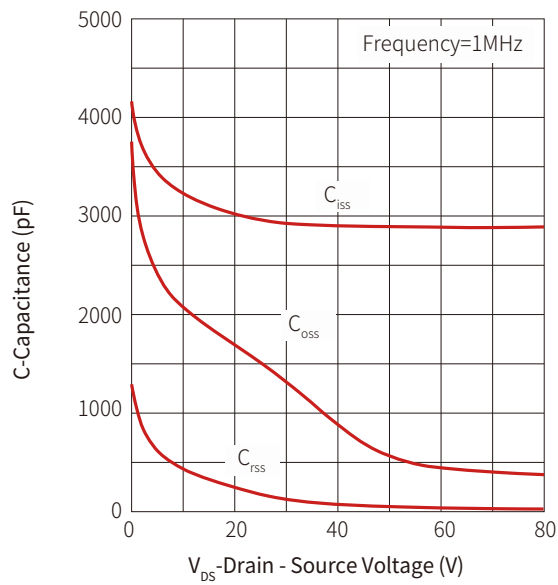
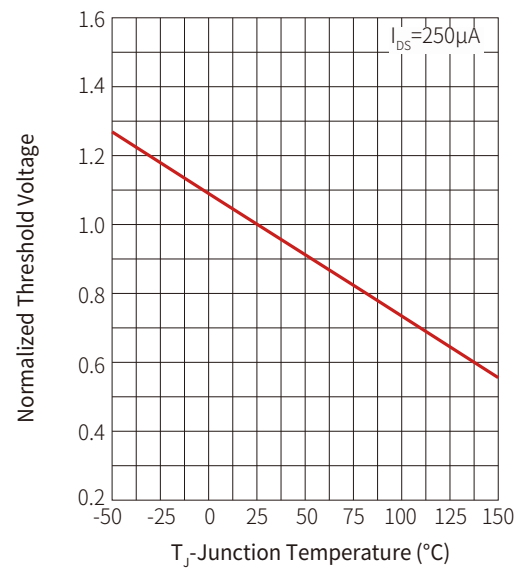
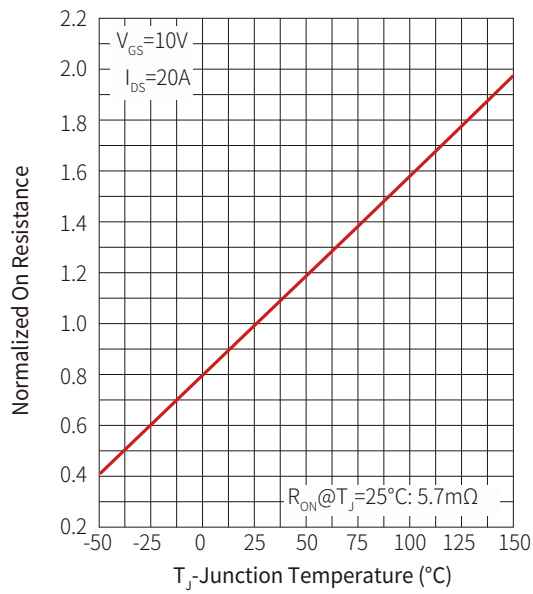
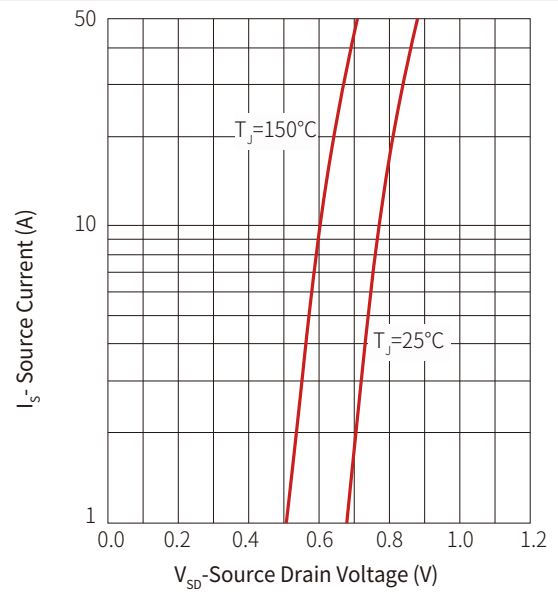
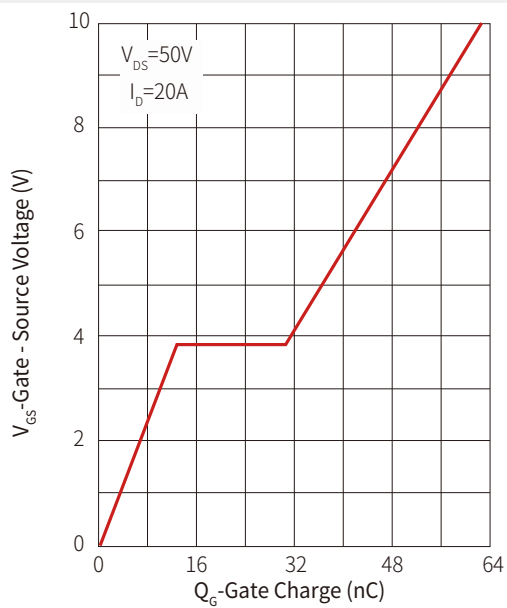
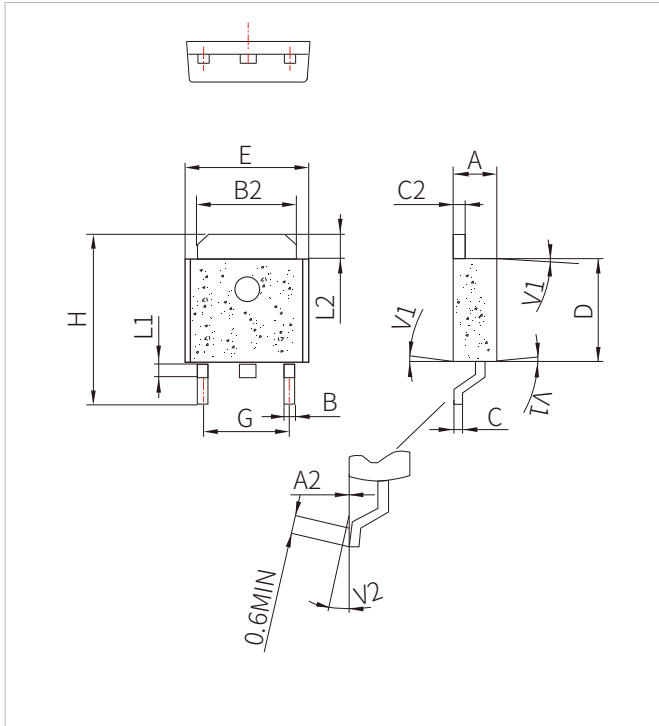
Figure 5: Output Characteristics

Figure 6: On Resistance

Figure 7: Capacitance

Figure 8: Normalized Threshold Voltage


Figure 9: Normalized On Resistance

Figure 10: Diode Forward Current

Figure 11: Gate Charge


TO-252 PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0.03		0.23	0.001		0.009
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.80	0.252		0.268
G	4.40		4.70	0.173	0.1	0.185
H	9.35		10.7	0.368		0.421
L1	1.30		1.70	0.051	0.143	0.067
L2	1.37		1.50	0.054		0.059
V1		4°			0.130	
V2	0°		8°	0°		8°

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SNM25T10N	TO-252	2500PCS	13"

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