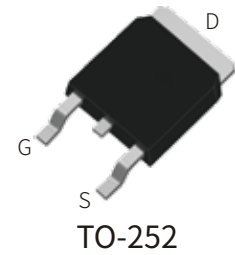


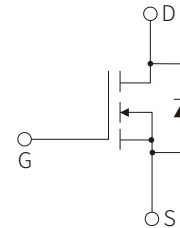
FEATURES

- | Surface-Mounted Package
- | Advanced Trench Cell design



APPLICATION

- | LCD TV Appliances
- | LCDM Appliances
- | High Power Inverter System



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	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}^*	84	A
Drain Current (DC)	I_D	$T_c=25^\circ\text{C}$ $V_{GS}=10\text{V}$	21
		$T_c=100^\circ\text{C}$ $V_{GS}=10\text{V}$	13.8
Gate-Source Voltage $T_c=25^\circ\text{C}$	V_{GS}	± 20	V
Drain power dissipation $T_c=25^\circ\text{C}$	P_{tot}	50	W
Continuous-Source Current $T_c=25^\circ\text{C}$	I_S	21	A
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^\circ\text{C}$
Thermal Resistance –Junction to Ambient	$R_{\theta JA}^{**}$	37	$^\circ\text{C}/\text{W}$
Thermal Resistance- Junction to Case	$R_{\theta JC}^{**}$	1.2	$^\circ\text{C}/\text{W}$

Notes:

- * Pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$
- ** Mounted on Large Heat Sink
- *** 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	150			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _{DS} =250μA	2.0		4.0	V
Drain Leakage Current	I _{DSS}	V _{DS} =120V, V _{GS} =0V			1	μA
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} =10A		33	40	mΩ
		V _{GS} =6V, I _{DS} =5A		40	46	mΩ
Diode Characteristics						
Diode Forward Voltage	V _{SD} ^a	I _{SD} =10A, V _{GS} =0V			1.3	V
Reverse Recovery Time	t _{rr}	I _{DS} =4A, V _{GS} =0V dI _{SD} /dt=100A/μs		72		nS
Reverse Recovery Charge	Q _{rr}			143		μC
Dynamic Characteristics^b						
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =75V, Frequency = 1 MHz		1232		pF
Output capacitance	C _{oss}			81		pF
Reverse transfer capacitance	C _{rss}			32		pF
Turn-on Delay Time	t _{d(on)}	V _{DS} =75V, V _{GEN} =10V R _G =4.5Ω, R _L =7.5Ω, I _{DS} =10A		11		nS
Turn-on Rise Time	t _r			40		nS
Turn-Off Delay Time	t _{d(off)}			19		nS
Turn-Off Fall Time	t _f			32		nS
Gate Charge Characteristics^b						
Total Gate Charge	Q _g	V _{DS} =75V, V _{GS} =10V, I _{DS} =10A		25.8		nC
Gate-Source Charge	Q _{gs}			8		nC
Gate-Drain Charge	Q _{gd}			8.3		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 Capability

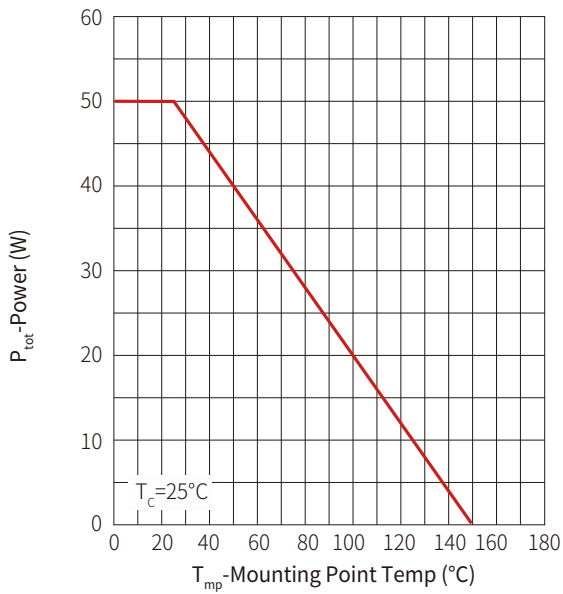


Figure2: Current Capability

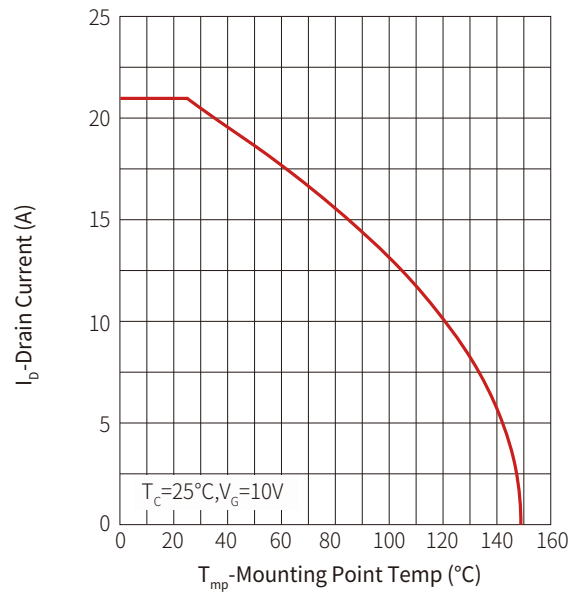


Figure3: Safe operating Area

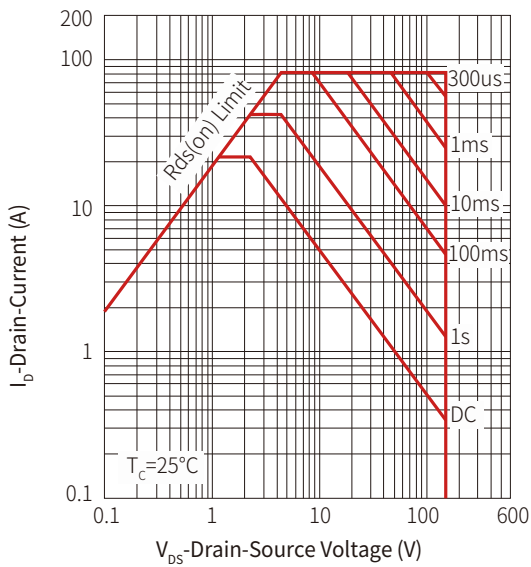


Figure 4: Transient Thermal Impedance

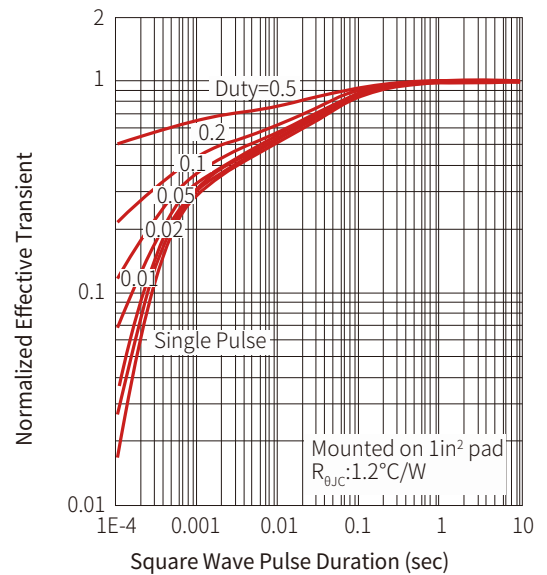


Figure 5: Output Characteristics

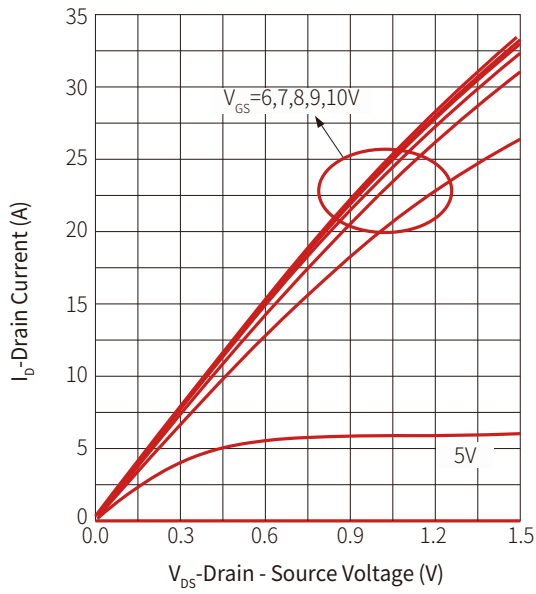


Figure 6: On Resistance

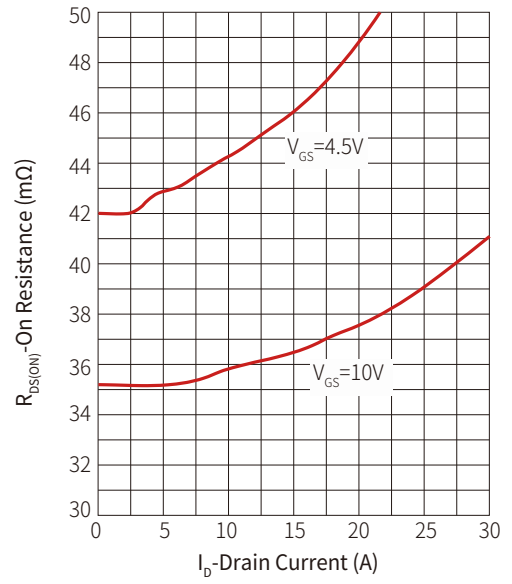


Figure 7: Transfer Characteristics

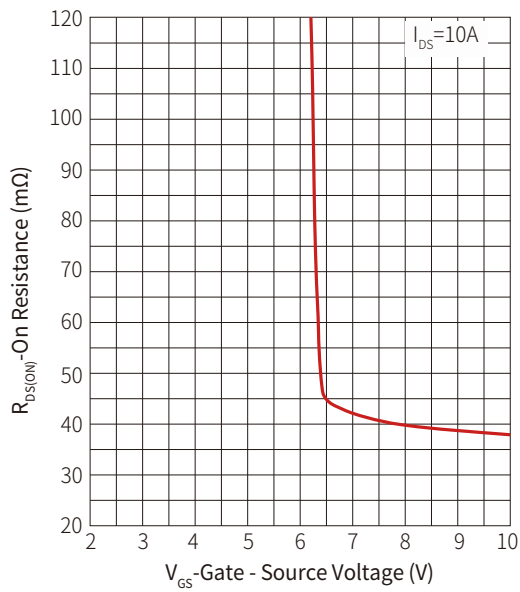


Figure 8: Normalized Threshold Voltage

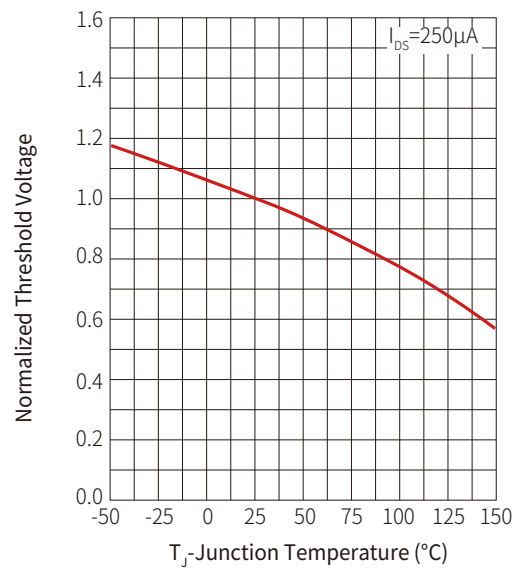


Figure 9: Normalized On Resistance

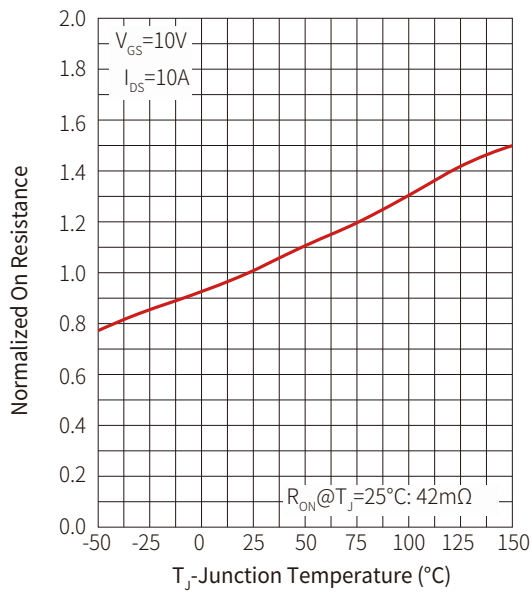


Figure 10: Diode Forward Current

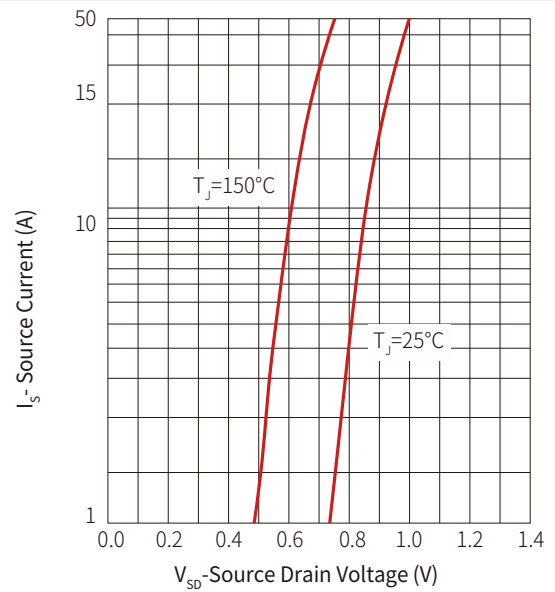


Figure 11: Capacitance

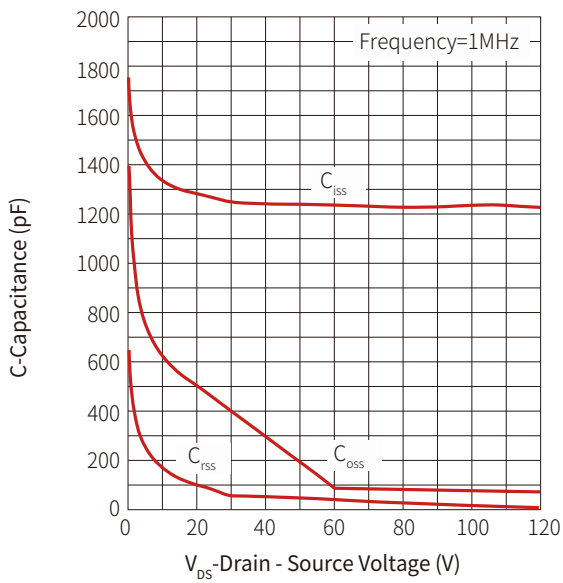
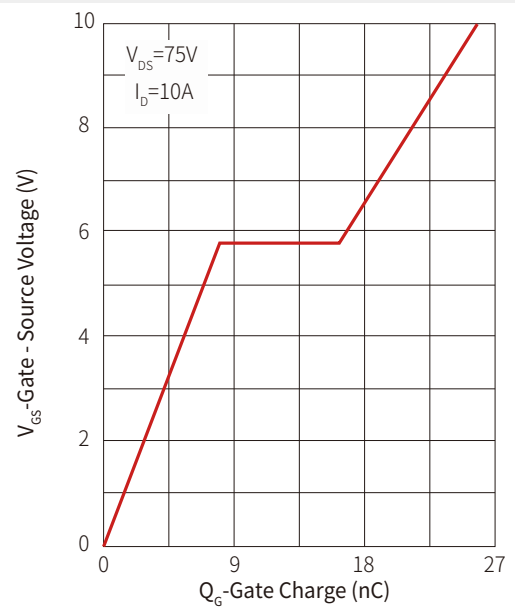
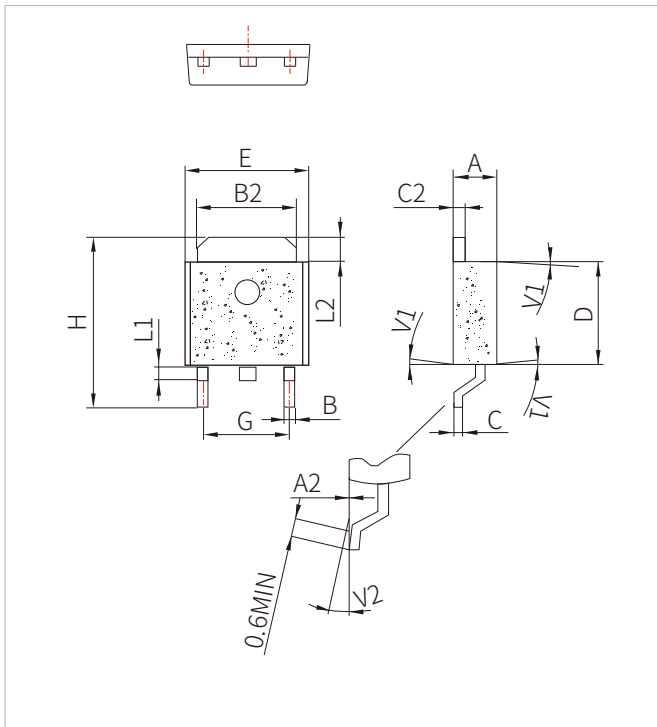


Figure 12: Gate Charge



TO-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	Marking	QTY/Reel	Reel Size
SNM20N15K	TO-252	 20N15 XXXX	2500PCS	13"

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