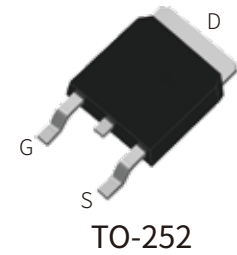


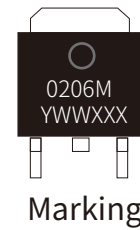
## FEATURES

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



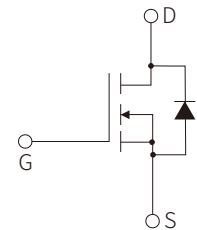
## APPLICATION

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



## APPROVALS

<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003



Schematic Symbol

## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage $T_c=25^\circ\text{C}$	$V_{DS}$	60	V
Drain Current ( Pulsed ) $T_c=25^\circ\text{C}$ $V_{GS}=10\text{V}$	$I_{DM}^{***}$	150	A
Drain Current ( DC )	$I_D^{**}$	$T_c=25^\circ\text{C}$ $V_{GS}=10\text{V}$	100
		$T_c=100^\circ\text{C}$ $V_{GS}=10\text{V}$	60
Gate-Source Voltage $T_c=25^\circ\text{C}$	$V_{GS}$	$\pm 20$	V
Drain power dissipation $T_c=25^\circ\text{C}$	$P_{tot}$	50	W
Continuous-Source Current $T_c=25^\circ\text{C}$	$I_S$	100	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<sub>A</sub>=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>DS</sub> =250μA	60			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250μA	1.0		3.0	V
Drain Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =48V, V <sub>GS</sub> =0V			1	μA
Gate Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±10	μA
On-State Resistance	R <sub>DS(on)</sub> <sup>a</sup>	V <sub>GS</sub> =10V, I <sub>DS</sub> =20A		2.7	3.2	mΩ
		V <sub>GS</sub> =4.5V, I <sub>DS</sub> =10A		4.6	5.5	mΩ
<b>Diode Characteristics</b>						
Diode Forward Voltage	V <sub>SD</sub> <sup>a</sup>	I <sub>SD</sub> =20A, V <sub>GS</sub> =0V			1.3	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>SD</sub> =20A, V <sub>GS</sub> =0V dI <sub>SD</sub> /dt=100A/μs		78.9		nS
Reverse Recovery Charge	Q <sub>rr</sub>			139		nC
<b>Dynamic Characteristics<sup>b</sup></b>						
Input capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =30V, Frequency = 1 MHz		4586		pF
Output capacitance	C <sub>oss</sub>			1792		pF
Reverse transfer capacitance	C <sub>rss</sub>			84		pF
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DS</sub> =30V, V <sub>GEN</sub> =10V R <sub>G</sub> =4.5Ω, R <sub>L</sub> =1.5Ω, I <sub>DS</sub> =20A		19		nS
Turn-on Rise Time	t <sub>r</sub>			41		nS
Turn-Off Delay Time	t <sub>d(off)</sub>			69.2		nS
Turn-Off Fall Time	t <sub>f</sub>			61		nS
<b>Gate Charge Characteristics<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =10V, I <sub>DS</sub> =20A		86.9		nC
Gate-Source Charge	Q <sub>gs</sub>			18.8		nC
Gate-Drain Charge	Q <sub>gd</sub>			22.1		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

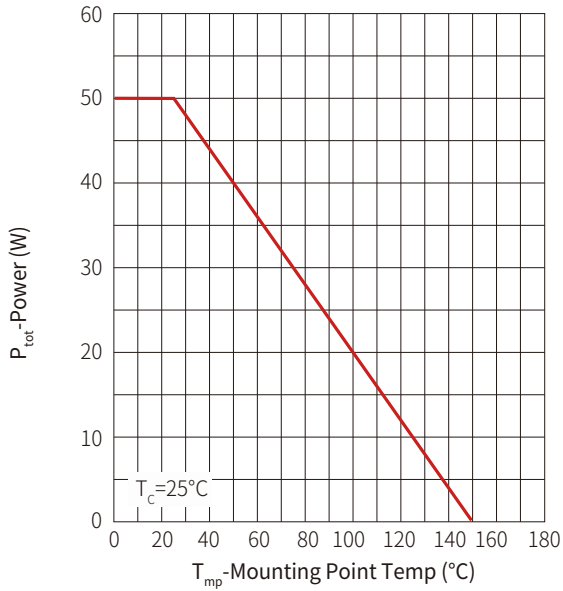


Figure2: Current Capability

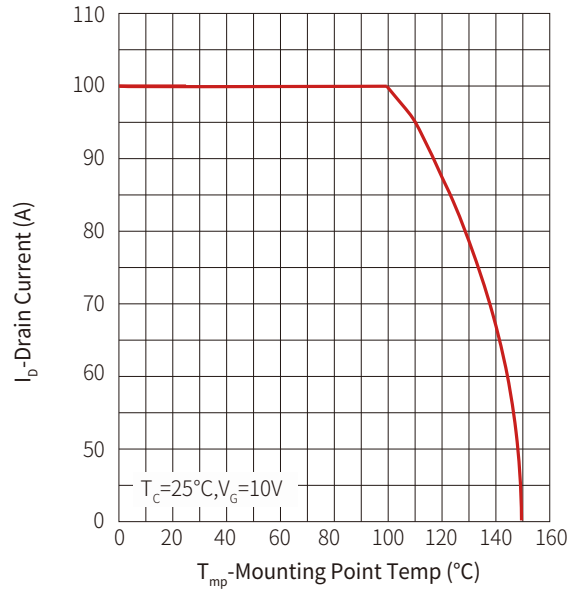


Figure3: Safe operating Area

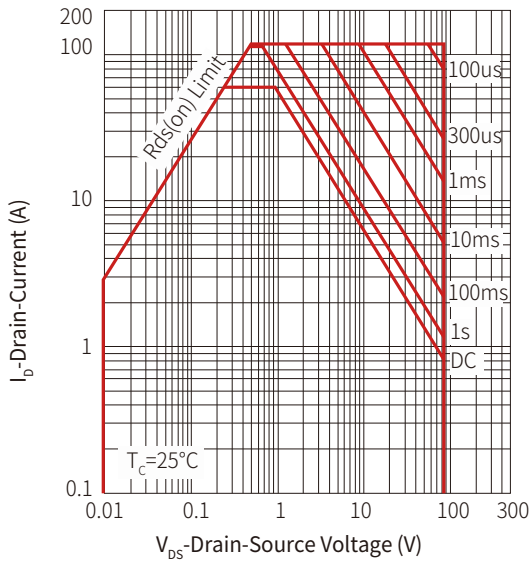
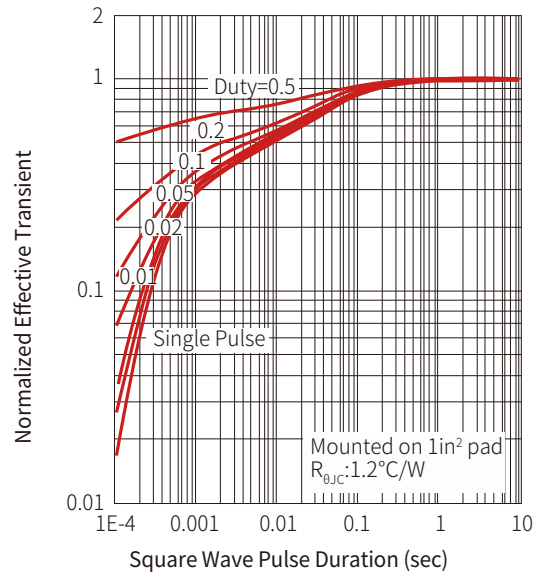
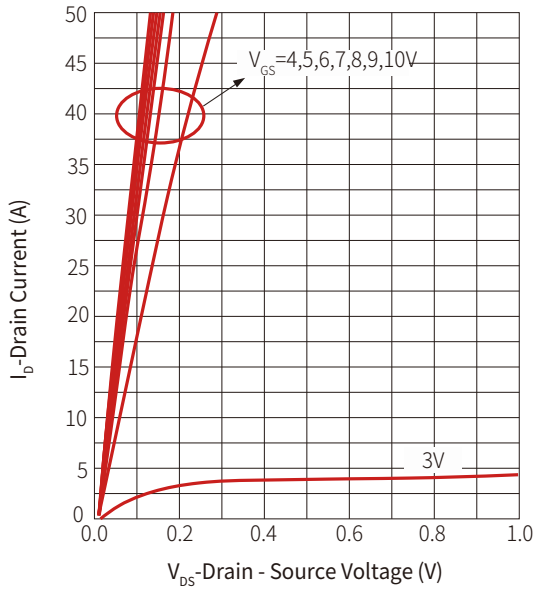


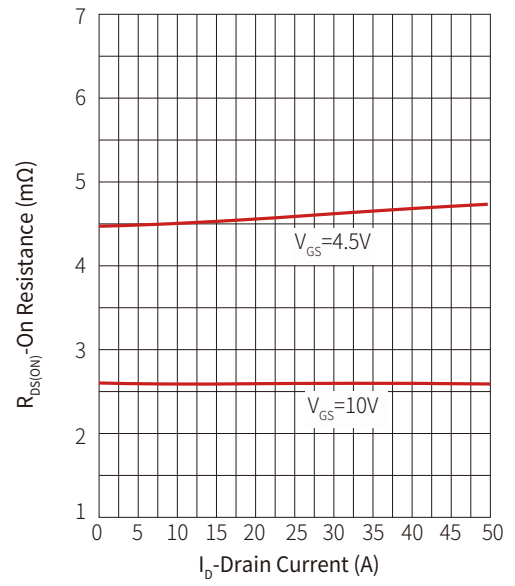
Figure 4: Transient Thermal Impedance



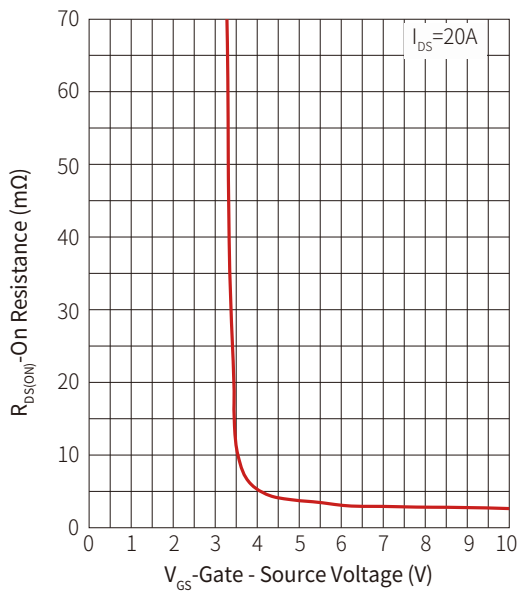
**Figure 5: Output Characteristics**



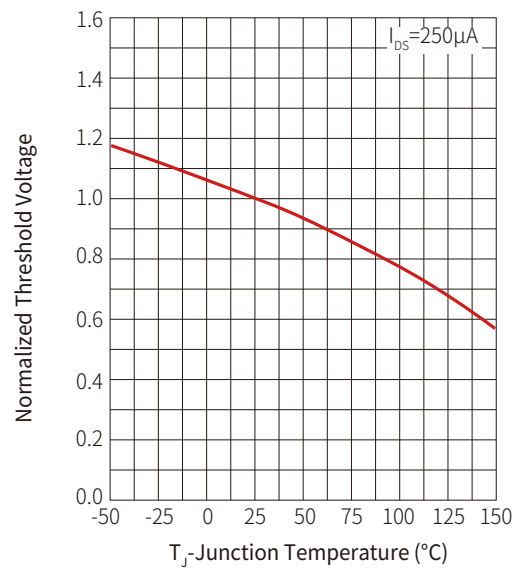
**Figure 6: On Resistance**



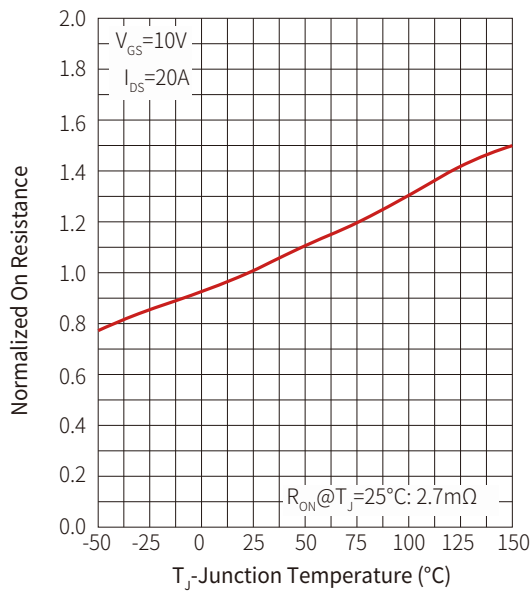
**Figure 7: Transfer Characteristics**



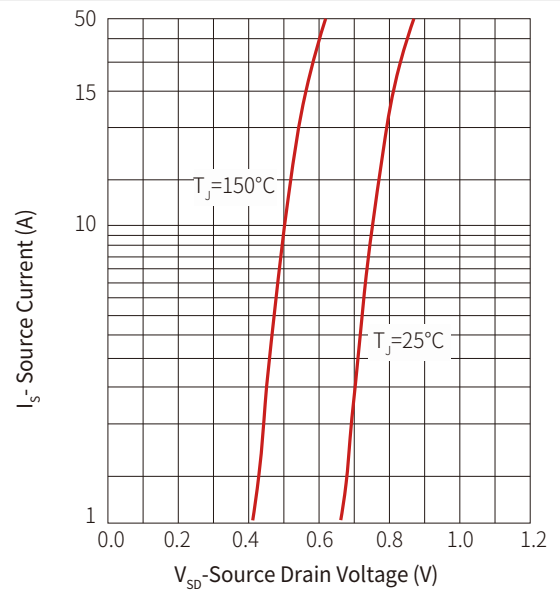
**Figure 8: Normalized Threshold Voltage**



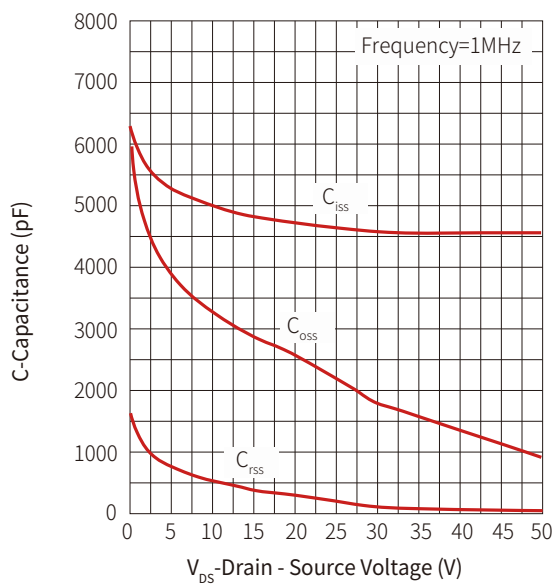
**Figure 9: Normalized On Resistance**



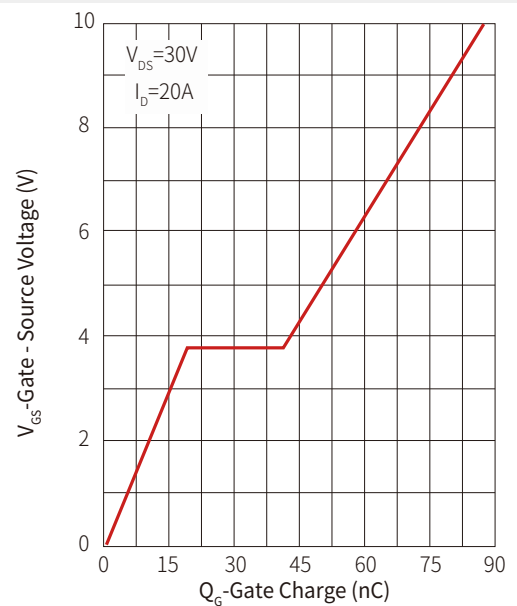
**Figure 10: Diode Forward Current**



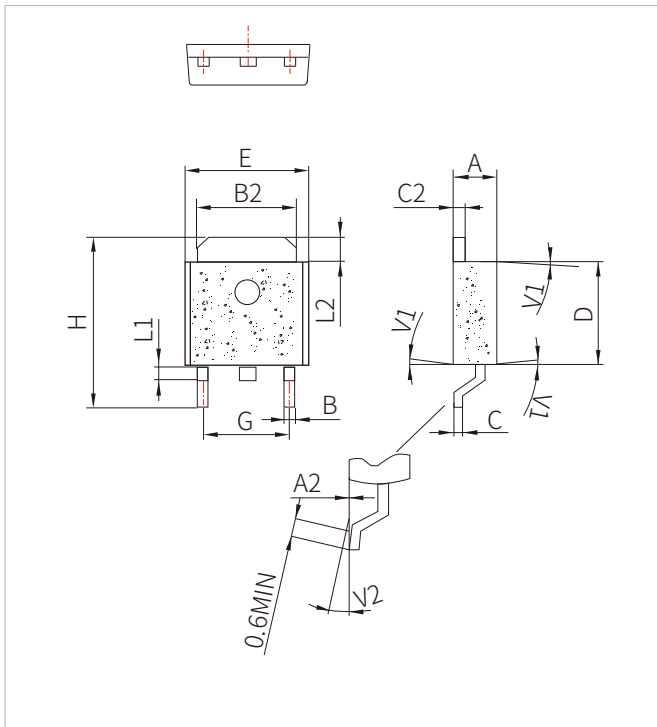
**Figure 11: Capacitance**



**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	QTY/Reel	Reel Size
SNM100N06D	TO-252	2500PCS	13"

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