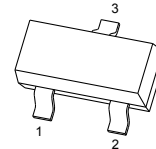


### Plastic-Encapsulate MOSFETS

N-Channel 20-V(D-S) MOSFET

$V_{(BR)DSS}$	$R_{DS(on)}$	$I_D$ Max
20V	0.013 $\Omega$ @ 4.5V	6.0A
	0.015 $\Omega$ @ 2.5V	

#### SOT-23-3L



- 1.GATE
- 2.SOURCE
- 3.DRAIN

#### FEATURE

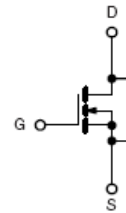
- TrenchFET Power MOSFET
- Excellent  $R_{DS(on)}$
- Low Gate Charge
- High Power and Current Handling Capability
- Surface Mount Package

#### APPLICATION

- Load Switch
- Power Management

MARKING: 207N

#### Equivalent Circuit



#### ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$I_D$	6	A
Pulsed Drain Current (note 1)	$I_{DM}$	25	A
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~+150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10 s)	$T_L$	260	$^\circ\text{C}$

### MOSFET ELECTRICAL CHARACTERISTICS

T<sub>a</sub> =25 °C unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>STATIC CHARACTERISTICS</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	20			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =18V, V <sub>GS</sub> = 0V			100	nA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> = 0V			±100	nA
Gate threshold voltage (note 3)	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.5		1.0	V
Drain-source on-resistance (note 3)	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =6A	9	13	14	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =5A	12	15	18	mΩ
Forward transconductance (note 3)	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =6A		10		S
Diode forward voltage (note 3)	V <sub>SD</sub>	I <sub>S</sub> =2.00A, V <sub>GS</sub> = 0V			1.0	V
<b>DYNAMIC CHARACTERISTICS (note4)</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f =1MHz		615		pF
Output Capacitance	C <sub>oss</sub>			150		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			120		pF
<b>SWITCHING CHARACTERISTICS (note 4)</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> =5V, V <sub>DS</sub> =10V, R <sub>L</sub> =1.4Ω, R <sub>GEN</sub> =3Ω		7.2		ns
Turn-on rise time	t <sub>r</sub>			13		ns
Turn-off delay time	t <sub>d(off)</sub>			29		ns
Turn-off fall time	t <sub>f</sub>			11		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =6A		12		nC
Gate-Source Charge	Q <sub>gs</sub>			1.2		nC
Gate-Drain Charge	Q <sub>gd</sub>			3.0		nC

**Notes :**

- 1.Repetitive rating: Pluse width limited by maximum junction temperature
- 2.Surface Mounted on FR4 board, t ≤10 sec.
3. Pulse test : Pulse width ≤300μs, duty cycle ≤2%.
4. Guaranteed by design, not subject to production.



### TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

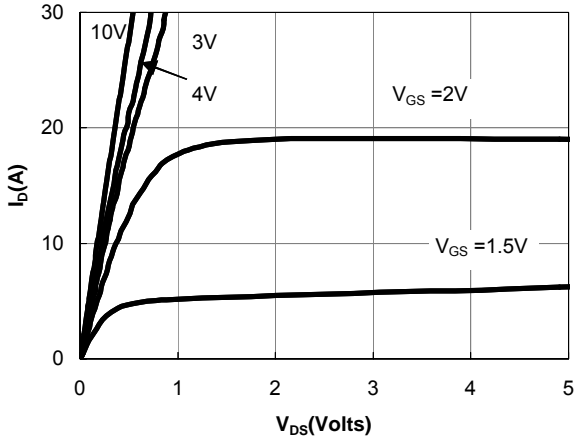


Figure 1: On-Regions Characteristic CS

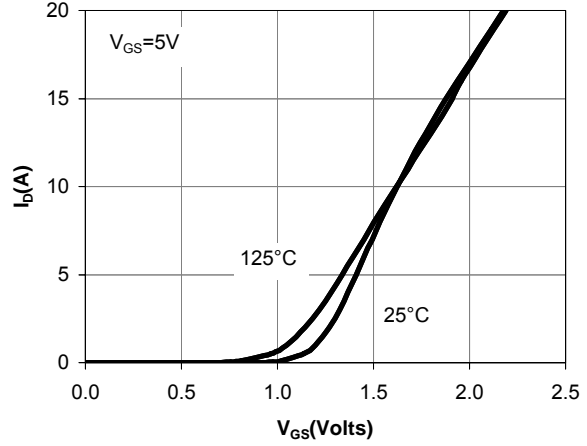


Figure 2: Transfer Characteristics

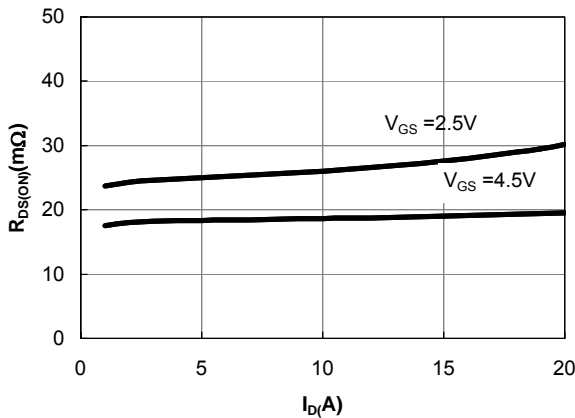


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

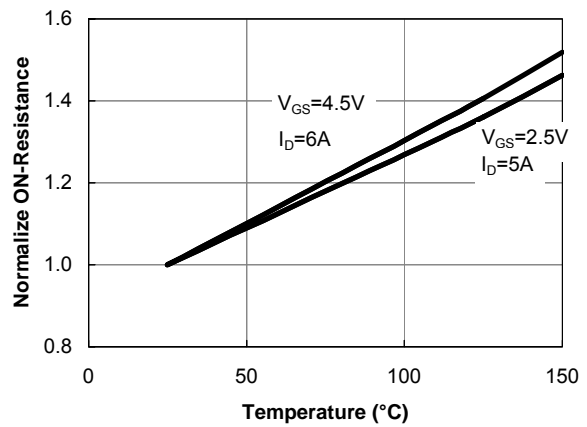


Figure 4: On-Resistance vs. Junction Temperature

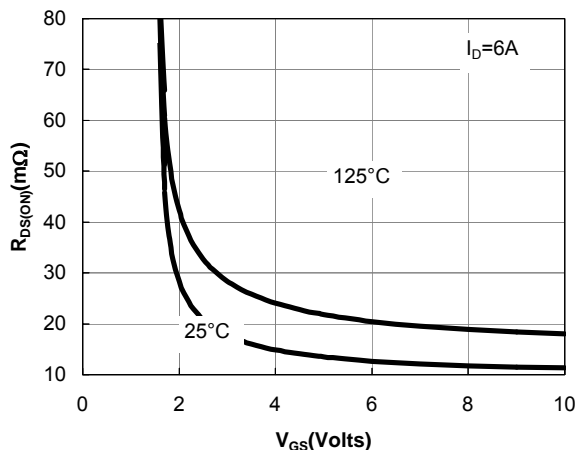


Figure 5: On-Resistance vs. Gate-Source Voltage

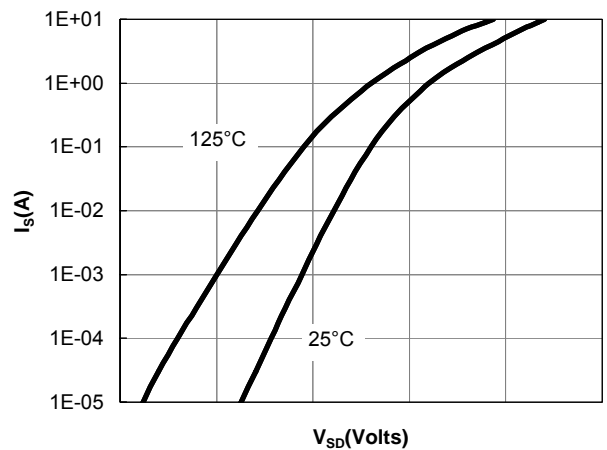


Figure 6: Body-Diode Characteristics



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**TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS**

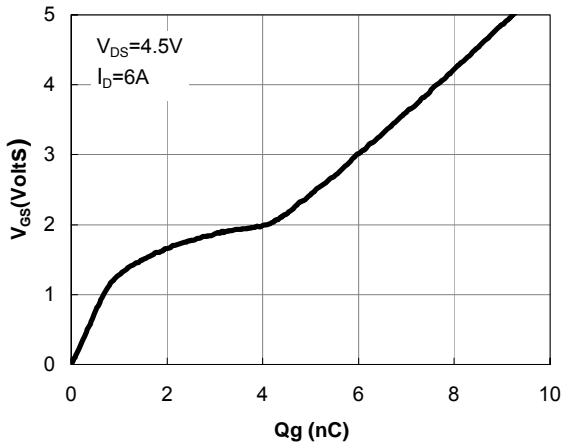


Figure 7: Gate-Charge Characteristics

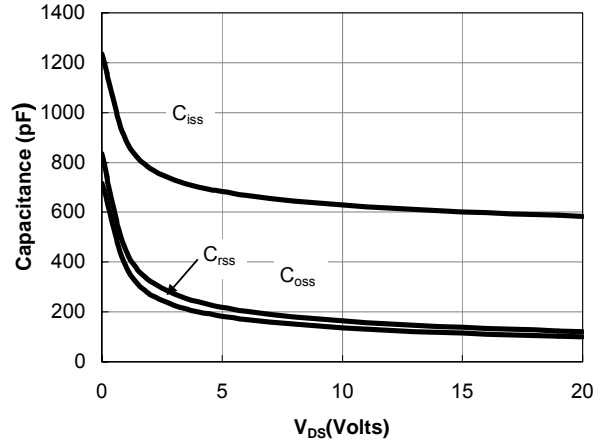


Figure 8: Capacitance Characteristics

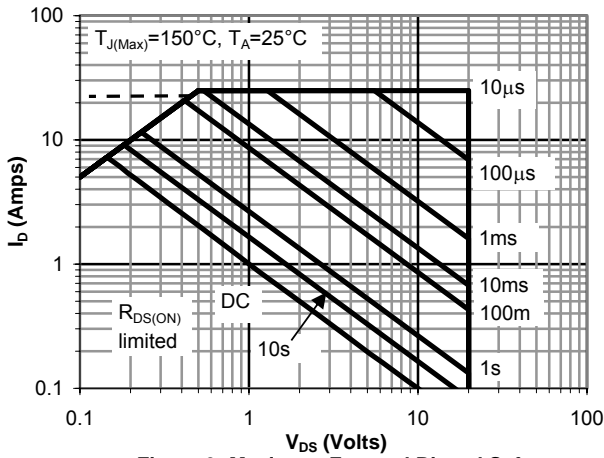


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

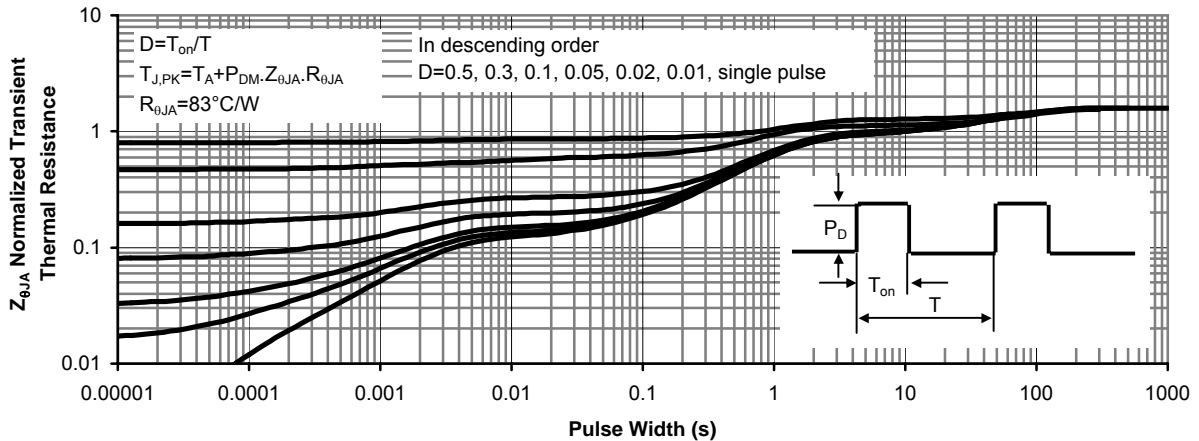
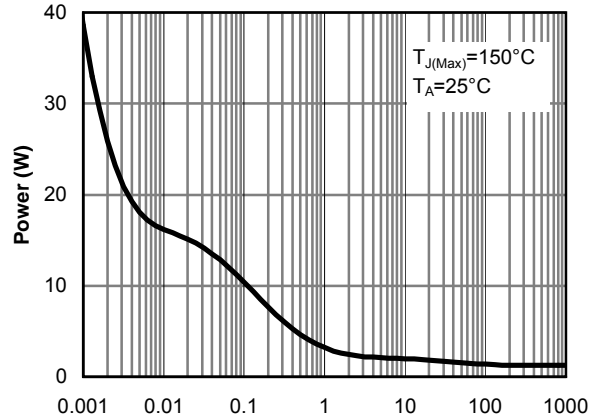
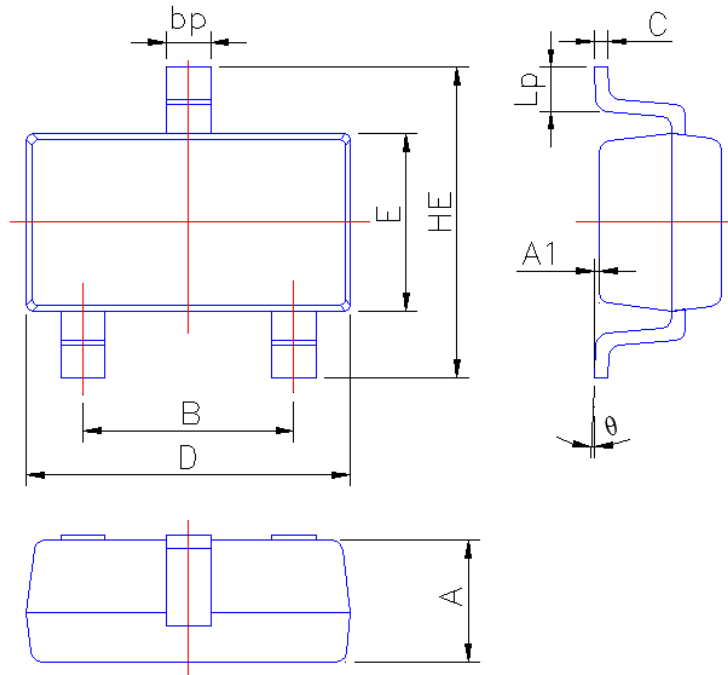


Figure 11: Normalized Maximum Transient Thermal Impedance



## SOT-23-3L Package Outline Dimensions



Symbol	Dimension in Millimeters	
	Min	Max
A	1.05	1.20
A1	0.010	0.100
B	1.80	2.00
bp	0.35	0.50
C	0.09	0.15
D	2.80	3.00
E	1.50	1.70
HE	2.60	3.00
Lp	0.25	0.55
θ	2°	6°