

***N channel 60V MOSFET***

**1. Description**

The HS3205T is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

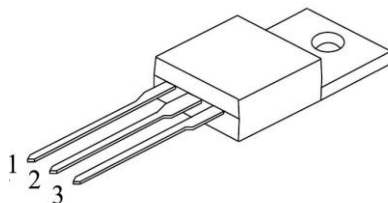
**2. Feature**

- $R_{DS(ON)} \leq 6.5m\Omega @ V_{GS}=10V$
- Super high density cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

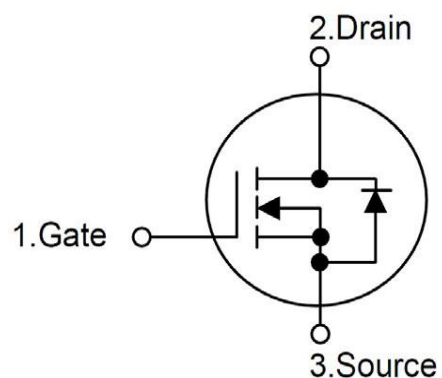
VDS	60	V
RDS(on)	6.5	mΩ
ID	105	A

**3. Pin configuration**

Order Number	Package
HS3205T	TO-220



**TO-220**



***N channel 60V MOSFET***

**4. Absolute maximum ratings (Tc=25°C Unless Otherwise Noted)**

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V <sub>DSS</sub>	60	V
Gate-Source Voltage		V <sub>DSS</sub>	±20	V
Continuous Drain Current	T <sub>c</sub> =25°C	I <sub>D</sub>	105	A
	T <sub>c</sub> =70°C		88	A
Pulsed Drain Current		I <sub>DM</sub>	419	A
Power Dissipation	T <sub>c</sub> =25°C	PD	200	W
	T <sub>c</sub> =70°C		140	
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	-55 to 175	°C

**5. Thermal characteristics**

Parameter	Symbol	Ratings	Units
Thermal resistance, case-to-sink typ.	R <sub>thCS</sub>	0.5	°C/W
Thermal resistance junction to case.	R <sub>thJC</sub>	0.75	°C/W
Thermal resistance junction to ambient.	R <sub>thJC</sub>	62.5	°C/W

**N channel 60V MOSFET**
**6. Electrical characteristics (TA =25°C Unless Otherwise Specified)**

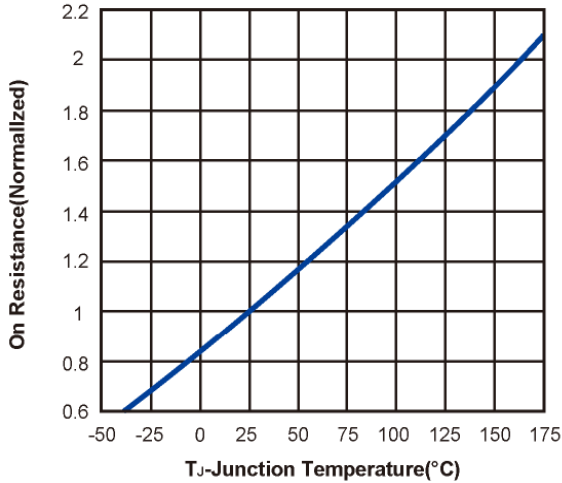
Symbol	Parameter	Limit	Min	Typ	Max	Unit
<b>STATIC</b>						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	60	-	-	V
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	2	-	4	V
IGSS	Gate-Body Leakage	VDS=0V, VGS=±20V	-	-	±100	nA
IDSS	Zero Gate Voltage Drain Current	VDS=60V, VGS=0V	-	-	1	μA
RDS(ON)	Drain-Source On-Resistance*	VGS=10V, ID=40A	-	4.9	6.5	mΩ
VSD	Diode Forward Voltage *	IS=40A, VGS=0V	-	-	1.3	V
<b>DYNAMIC</b>						
Qg	Total Gate Charge	VDD=44V, VGS=10V, ID=66A	-	133	-	
Qgs	Gate-Source Charge		-	42.5	-	
Qgd	Gate-Drain Charge		-	40.5	-	
Ciss	Input Capacitance	VDS=25V, VGS=0V, f=1MHz	-	8793	-	pF
Coss	Output Capacitance		-	361	-	
Crss	Reverse Transfer Capacitance		-	193	-	
td(on)	Turn-On Delay Time	VGS =10V, RL=30Ω VDD=28V, RG=6.8Ω ID=66A	-	60.9	-	ns
tr	Turn-On Rise Time		-	219	-	
td(off)	Turn-Off Delay Time		-	114	-	
tf	Turn-Off Fall Time		-	34.3	-	

Notes :a. pulse test:pulse width 300 us,duty cycle 2% ,Guaranteed by design,not subject to production testing.

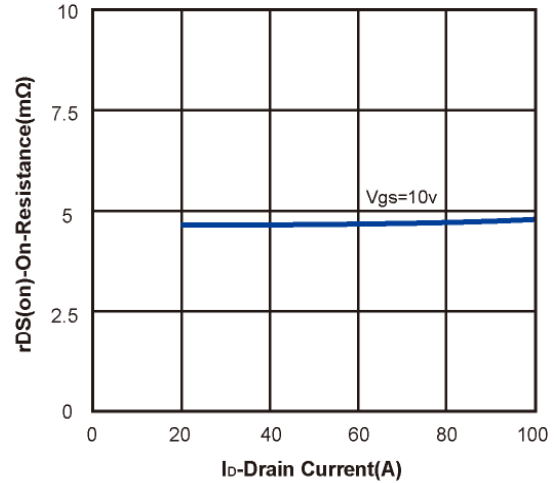
b. HOMSEMI reserves the right to improve product design,functions and reliability without notice.

### N channel 60V MOSFET

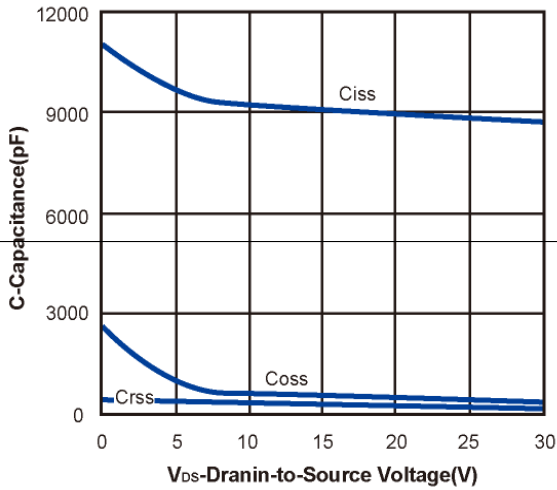
On Resistance vs. Junction Temperature



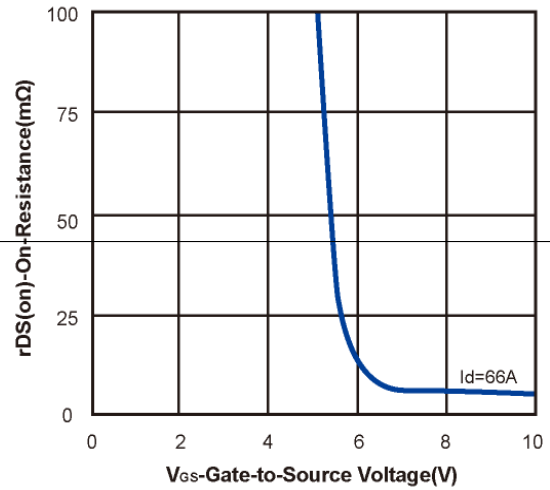
On Resistance vs. Drain Current



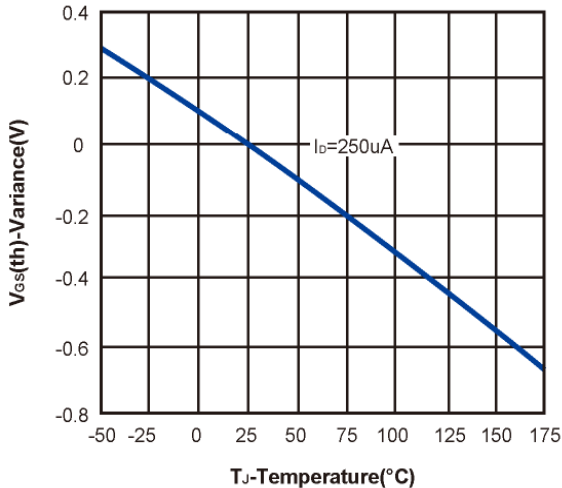
Capacitance



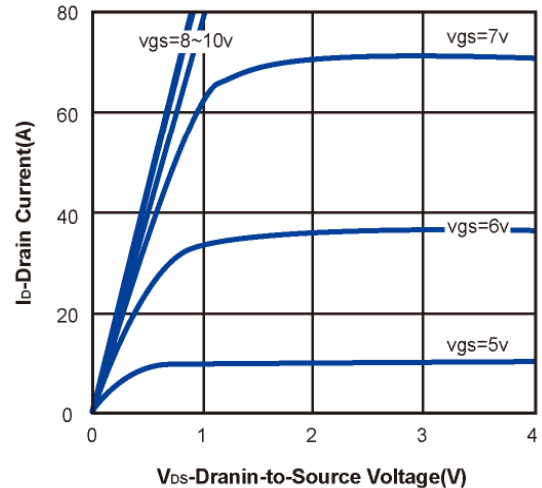
On Resistance vs. Gate-to-Source Voltage



Threshold Voltage

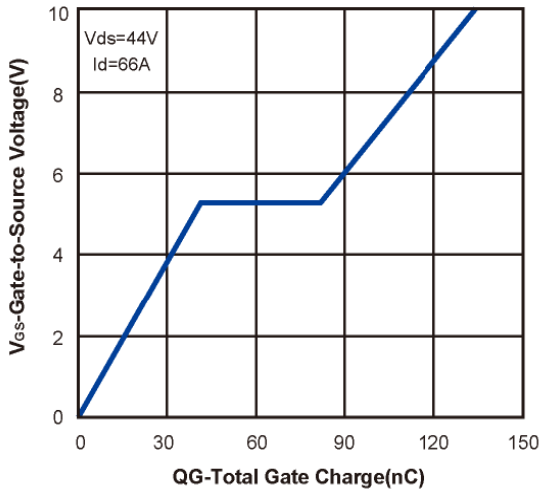


On-Region Characteristics

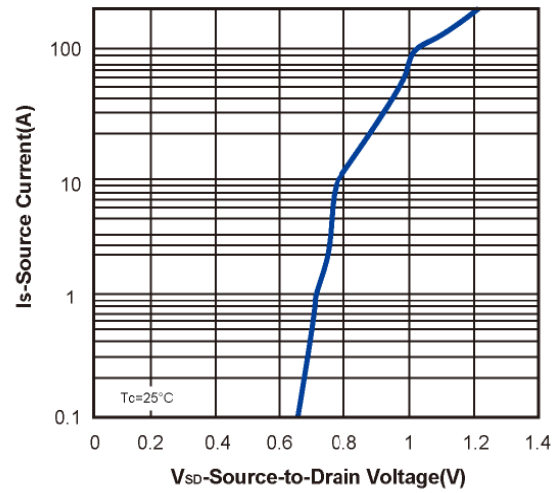


**N channel 60V MOSFET**

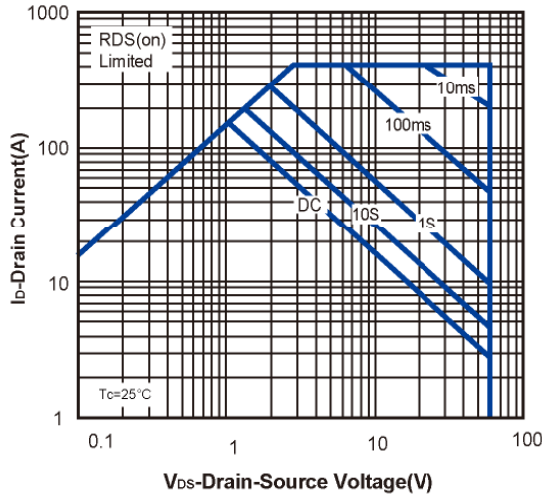
Gate Charge



Body-diode characteristics



Maximum Forward Biased Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Case

