

HT8205

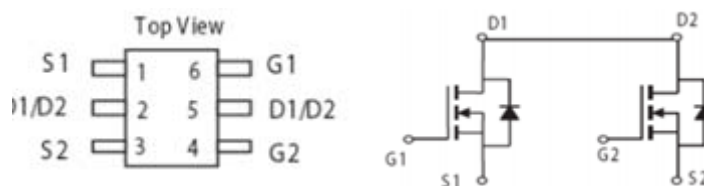
FEATURES

- ◆ Super high dense cell design for low $R_{DS(ON)}$
- ◆ Rugged and reliable
- ◆ Simple drive requirement
- ◆ SOT-23-6 package

PRODUCT SUMMARY		
VDSS	ID	RDS(ON) (mΩ) Typ
20V	4A	28@ VGS=4.5V
		42@ VGS=2.5V



NOTE: The HT8205 is available
In a lead-free package



ABSOLUTE MAXIMUM RATINGS (TA=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	VDS	20	V
Gate-Source Voltage	VGS	±12	V
Drain Current-Continuous ^a @Tj=125°C - Pulsed ^b	ID	4	A
	IDM	20	A
Drain-source Diode Forward Current ^a	IS	1.7	A
Maximum Power Dissipation ^a	PD	1.25	W
Operating Junction and Storage Temperature Range	TJ,TSTG	-55 to 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to Ambient ^a	Rth JA	80	°C/W
--	--------	----	------

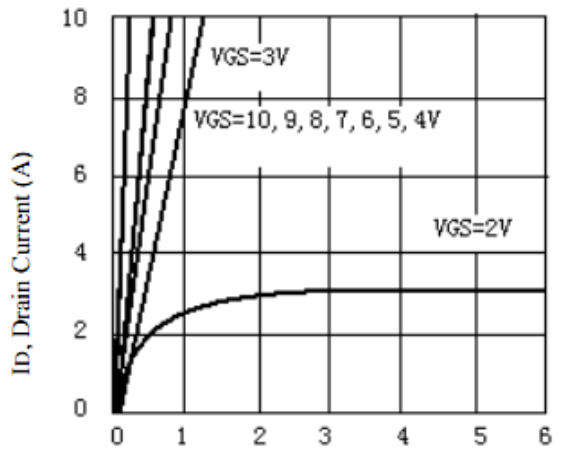
ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BVDSS	VGS=0V, ID=250μA	20			V
Zero Gate Voltage Drain Current	IDSS	VDS=16V, VGS=0V			1	μA
Gate-Body Leakage	IGSS	VGS=±8V, VDS=0V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	VGS(th)	VDS=VGS, ID=250μA	0.5	0.8	1.5	V
Drain-Source On-State Resistance	RDS(ON)	VGS=4.5V, ID=4A		21	28	mΩ
		VGS=2.5V, ID=2.8A		35	42	
Forward Transconductance	gFS	VGS=5V, ID=5A		5		S
DAYNAMIC CHARACTERISTICS						
Input Capacitance	CISS	VDS=10V, VGS=0V f=1.0MHZ		608		pF
Output Capacitance	COSS			115		pF
Reverse Transfer Capacitance	CRSS			86		pF
SWITCHING CHARACTERISISTICS						
Turn-On Delay Time	tD(ON)	VDD=10V ID=6A, VGEN=4.5V RL=10ohm RGEN=10ohm		10		ns
Rise Time	tr			14		ns
Turn-Off Delay Time	tD(OFF)			39		ns
Fall Time	tf			26		ns
Total Gate Charge	Qg	VDS=10V, ID=1A VGS=4.5V		9.2		nC
Gate-Source Charge	Qgs			1.6		nC
Gate-Drain Charge	Qgd			2.6		nC
DRAIN-SOURCE DIODE CHARACTERISTICS						
Diode Forward Voltage	VSD	VGS=0V, IS=1.7A		0.84	1.3	V

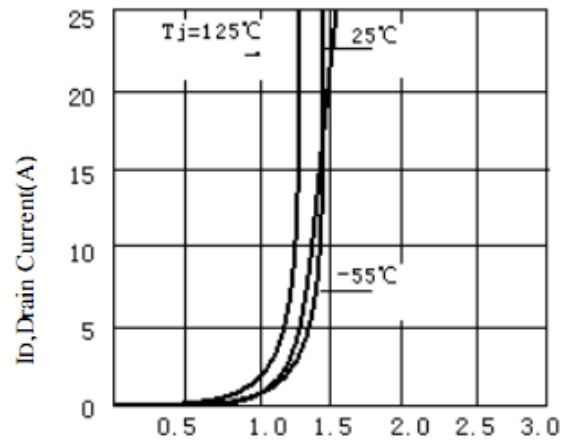
Notes

- Surface Mounted on FR4 Board, $t \leq 10\text{sec}$
- Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$
- Guaranteed by design, not subject to production testing.

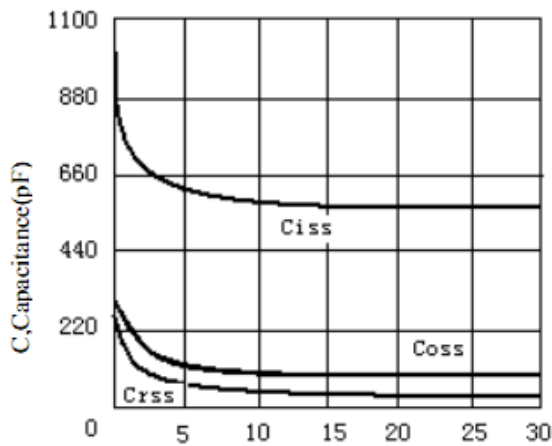
HT8205



VDS, Drain-to-Source Voltage (V)
Figure 1. Output Characteristics



VGS, Gate-to-source Voltage (V)
Figure 2. Transfer Characteristics



VGS, Drain-to Source Voltage
Figure3. Capacitance

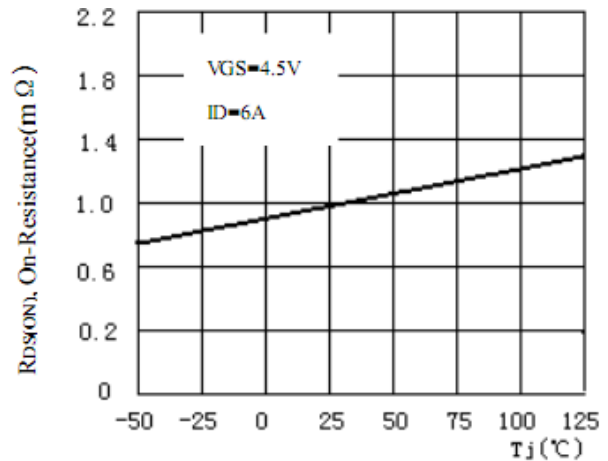
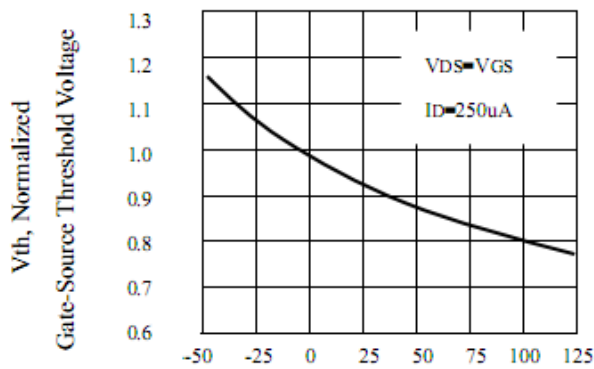
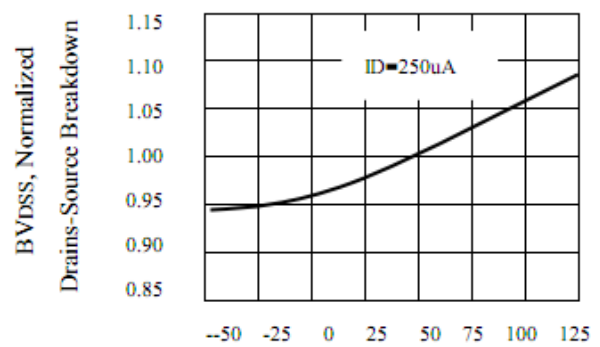


Figure4. On-Resistance Variation with Temperature



Tj, Junction Temperature (°C)
Figure5. Gate Threshold Variation With Temperature



Tj, Junction Temperature (°C)
Figure6. Breakdown Voltage Variation With Temperature

HT8205

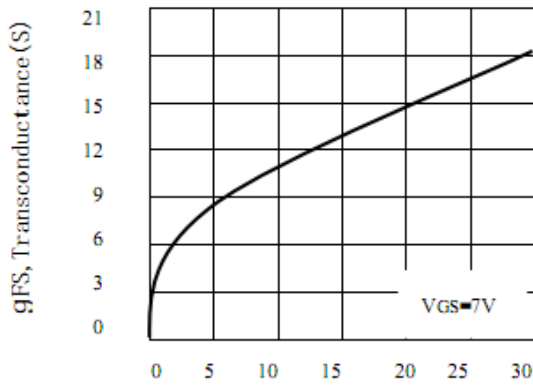


Figure7. Transconductance Variation With Drain Current

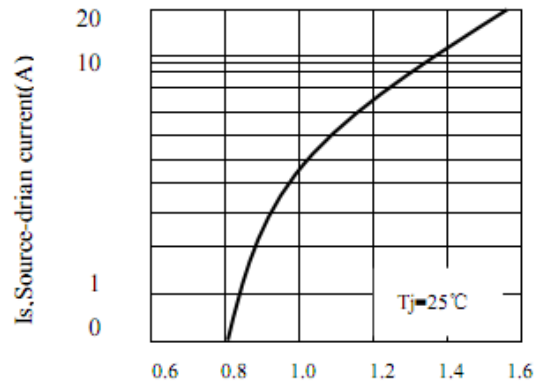


Figure8. Body Diode Forward Voltage Variation with Source Current

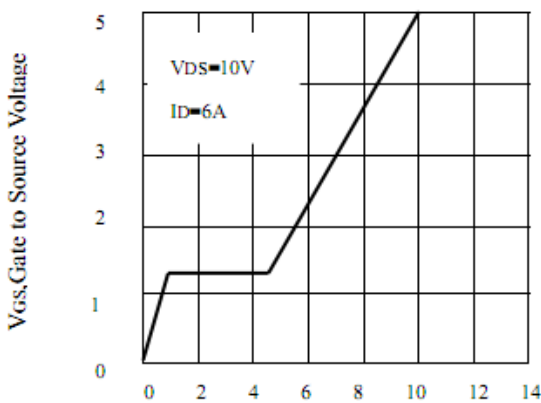


Figure9. Gate Charge

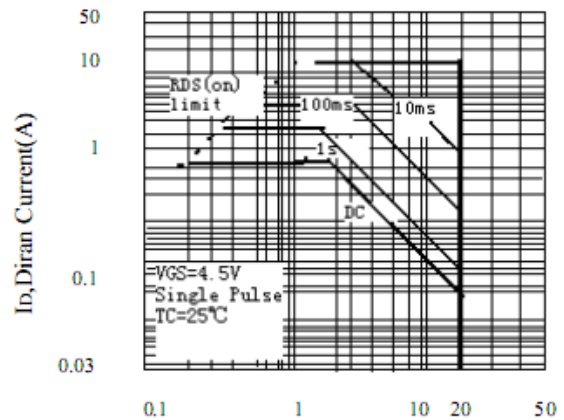


Figure10. Maximum Safe Operating Area