

## 8205

### Dual N CHANNEL High Density Trench MOSFET

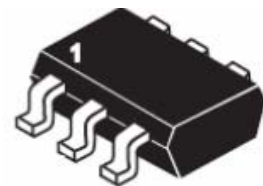
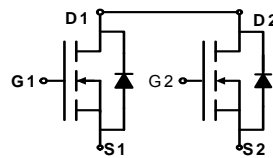
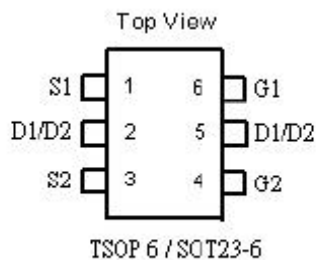
TYPE	BVDSS	RDS(ON)	ID
8205	20V	25mΩ@VGS=4.5V	5A
		40mΩ@VGS=2.5V	5A



RoHS\*  
COMPLIANT

Green Product

### PIN DESCRIPTION



### FEATURES

- High Density cell trench design for low R
- Rugged and reliable
- Surface Mount package
- Lead Free Available(Green Product)

### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V <sub>DSS</sub>	Drain-Source Voltage ( V <sub>GS</sub> =0V )	20	V
V <sub>GSS</sub>	Gate- source Voltage	±12V	V
I <sub>D</sub> (a)	Drain Current (continuous) at T <sub>c</sub> = 25 °C	5	A
I <sub>D</sub>	Drain Current (continuous) at T <sub>c</sub> = 100 °C	2.4	A
I <sub>DM</sub> (b)	Drain Current (pulsed)	24	A
P <sub>tot</sub>	Total Dissipation at T <sub>c</sub> = 25 °C	1.25	W
T <sub>stg</sub>	Storage Temperature	- 55~175	°C
T <sub>j</sub>	Max. Operating Junction Temperature		

(a) Current limited by package

(b) Pulse width limited by safe operating area

### THERMAL DATA

Symbol	Parameter	Max	Value	Unit
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	100	°C / W

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### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

#### OFF

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
BV <sub>DSS</sub>	Drain-source Breakdown Voltage	I <sub>D</sub> = 250 uA , V <sub>GS</sub> = 0V	20			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current (V <sub>GS</sub> = 0V)	V <sub>DS</sub> = 16V			1	uA
I <sub>GSS</sub>	Current (V <sub>DS</sub> = 0V)	V <sub>GS</sub> = ±12V			±100	nA

#### ON

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250uA	0.5	0.7	1.2	V
R <sub>DS(on)</sub>	Static Drain-source On Resistance	V <sub>GS</sub> = 4.5V , I <sub>D</sub> =5A		23	25	mΩ
		V <sub>GS</sub> = 2.5V , I <sub>D</sub> =5A		34	40	mΩ

#### DYNAMIC

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> = 10V , f = 1 MHz , V <sub>GS</sub> =0V		595		PF
C <sub>oss</sub>	Output Capacitance			140		PF
C <sub>rss</sub>	Reverse Transfer Capacitance			125		PF

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### ELECTRICAL CHARACTERISTICS (continued)

#### SWITCHING ON

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
td ( on )	Turn-on Delay Time	V <sub>DD</sub> =10V , I <sub>D</sub> = 6A , R <sub>g</sub> =3Ω V <sub>GS</sub> =4.5V		3.5		ns
tr	Rise Time			13.5		ns
Qg	Total Gate Charge	V <sub>DD</sub> = 10V , I <sub>D</sub> =6 A , V <sub>GS</sub> = 4.5V		21		nc
Qgs	Gate-Source Charge			1.3		nc
Qgd	Gate-Drain Charge			3.3		nc

#### SWITCHING OFF

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
td (off)	Turn-off Delay Time	V <sub>DD</sub> = 10V , I <sub>D</sub> =6A , R <sub>g</sub> =3Ω V <sub>GS</sub> =4.5V		32		ns
tf	Fall Time			6.6		ns

#### SOURCE DRAIN DIODE

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
I <sub>S</sub>	Continuous source-drain diode current	T <sub>C</sub> = 25°C			5	A
T <sub>rr</sub>	Body diode reverse recovery Time	I <sub>F</sub> =6A , di/dt = 100A/us , T <sub>j</sub> =25°C		14		nS
Q <sub>rr</sub>	Body diode reverse recovery charge				5	
V <sub>SD</sub>	Forward On Voltage	I <sub>SD</sub> =1.0 A , V <sub>GS</sub> = 0V		0.78	1.2	V

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#### TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

