

## Dual N-Channel Enhancement Mode MOSFET

- Features**

For a single mosfet

$V_{DS}(V) = 20V, I_D = 4.75A,$

$R_{DS(ON)} = 22m\Omega @ V_{GS} = 4.50V$

$R_{DS(ON)} = 24m\Omega @ V_{GS} = 3.85V$

$R_{DS(ON)} = 30m\Omega @ V_{GS} = 2.50V$

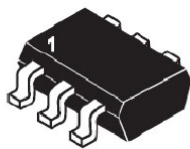
- General Description**

Super high dense cell design for low  $R_{DS(ON)}$ .

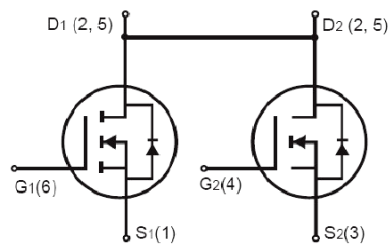
Rugged and reliable.

Surface Mount package.

- Pin Configuration**



**SOT23-6L**



- Absolute Maximum Ratings @  $T_A = 25^\circ C$  unless otherwise specified**

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	12	V
Drain Current-Continuous @ $T_J = 25^\circ C$ <sup>a</sup>	$I_D$	4.75	A
-Pulsed <sup>b</sup>	$I_{DM}$	25	A
Drain-Source Diode Forward Current <sup>a</sup>	$I_S$	2	A
Maximum Power Dissipation <sup>a</sup>	$P_D$	1.25	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^\circ C$

Notes:

a. mounted on a 1in<sup>2</sup> FR-4 board with 2oz. Copper in a still air environment at 25 $^\circ C$ , the current rating is based on the DC (<10s) test conditions, for each single die.

b. Pulse Test: Pulse Width < 300  $\mu s$ , Duty Cycle < 2%.

● **Electrical Characteristics @  $T_A = 25^\circ\text{C}$  unless otherwise specified**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS (Note 2)</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	--	--	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$	--		1	$\mu A$
Gate-Body Leakage	$I_{GSS}$	$V_{GS} = \pm 12V, V_{DS} = 0V$	--		$\pm 100$	nA
<b>ON CHARACTERISTICS (Note 2)</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.6	--		V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$		22	25	m $\Omega$
		$V_{GS} = 3.85V, I_D = 5A$		24	27	
		$V_{GS} = 2.5V, I_D = 4A$		30	35	
Forward Transconductance	$G_{FS}$	$V_{DS} = 10V, I_D = 6A$		5		S
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	$C_{ISS}$	$V_{DS} = 10V, V_{GS} = 0V$ $F = 1.0MHz$	--	560	--	pF
Output Capacitance	$C_{OSS}$		--	75		
Reverse Transfer Capacitance	$C_{RSS}$			70		
Total Gate Charge	$Q_G$	$V_{DS} = 10V, I_D = 6A, V_{GS} = 4.5V$		5		nC
Gate-Source Charge	$Q_{GS}$			0.9		
Gate-Drain	$Q_{GD}$			1.4		
<b>SWITCHING CHARACTERISTICS</b>						
Turn-On Delay Time	$T_{D(ON)}$	$V_{DD} = 10V, I_D = 1A,$	--	18		nS
Turn-Off Delay Time	$T_{D(OFF)}$	$V_{GEN} = 4.5V, R_G = 6\Omega$		25	--	

Note: 2. Short duration test pulse used to minimize self-heating effect.

● Typical Performance Characteristics

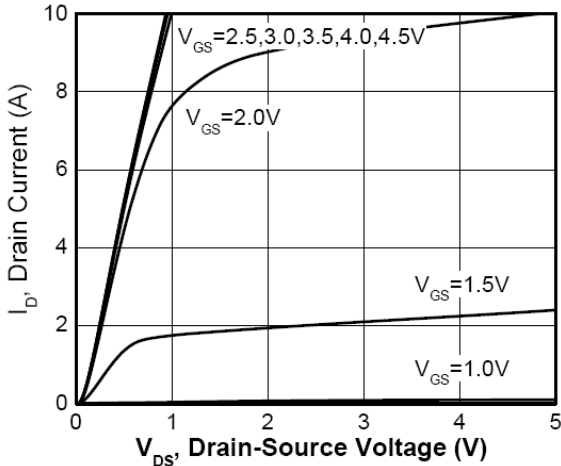


Figure 1. Output Characteristics

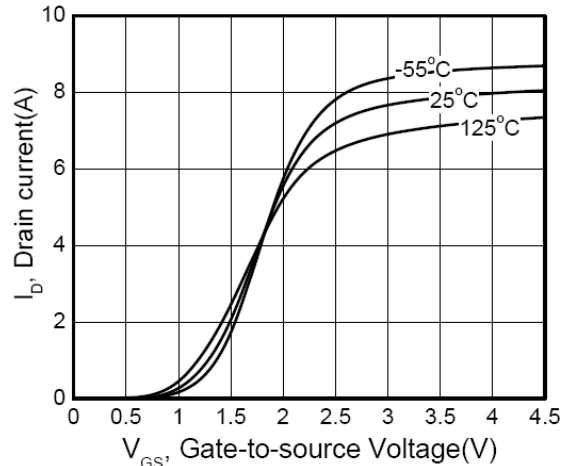


Figure 2. Transfer Characteristics

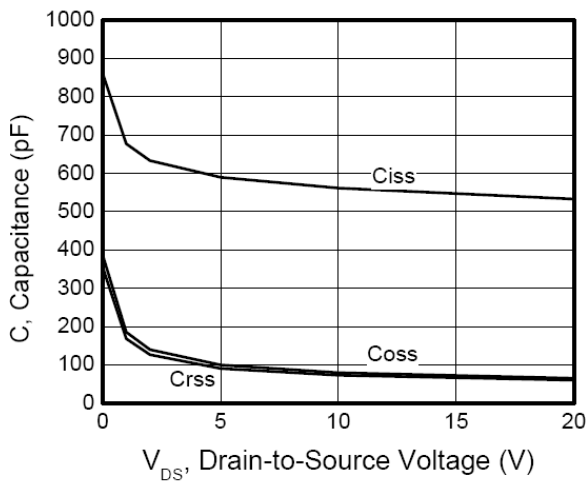


Figure 3. Capacitance

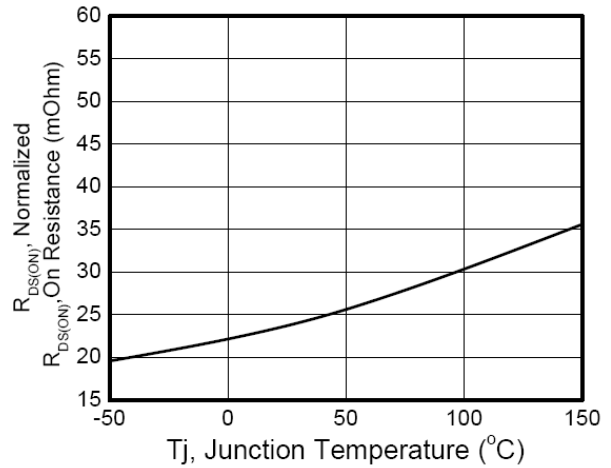


Figure 4. On Resistance Vs. Temperature

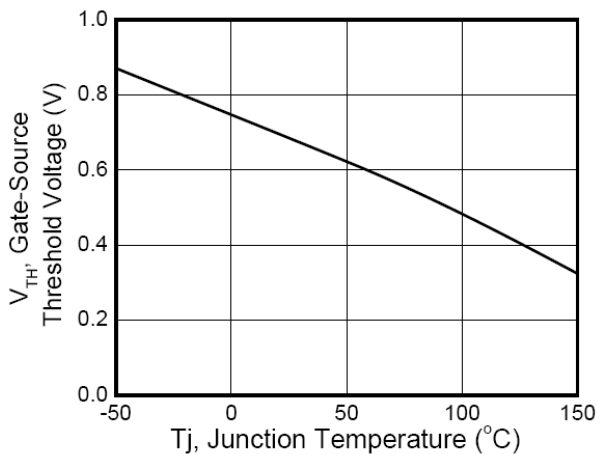


Figure 5. Gate Threshold Vs. Temperature

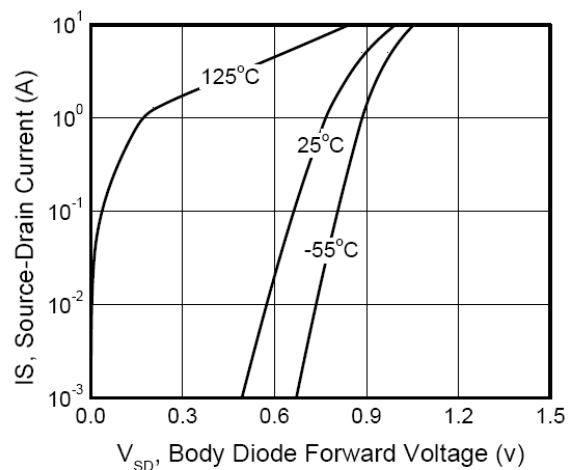
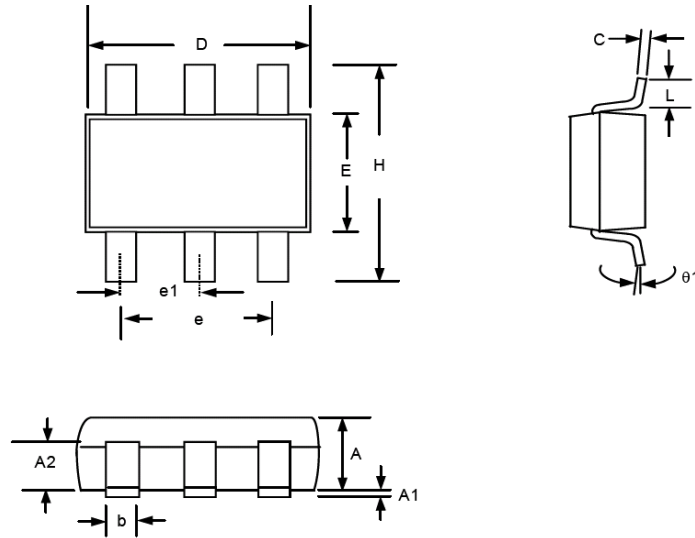


Figure 6. Body Diode Forward Voltage Vs. Source Current

# FS8205

## ● Package Information



Symbol	Dimension mm			Dimension in inch		
	Min	Nom	Max	Min	Nom	Max
A	1.00	1.10	1.30	0.039	0.043	0.051
A1	0.00		0.10	0.000		0.004
A2	0.70	0.80	0.90	0.028	0.031	0.035
b	0.35	0.40	0.50	0.014	0.016	0.020
C	0.10	0.15	0.25	0.004	0.006	0.010
D	2.70	2.90	3.10	0.106	0.114	0.122
E	1.40	1.60	1.80	0.055	0.063	0.071
e		1.90(TYP)			0.075(TYP)	
H	2.60	2.80	3.00	0.102	0.110	0.118
L	0.37			0.015		
θ1	1°	5°	9°	1°	5°	9°