SamHop Microelectronics Corp.

STM8206

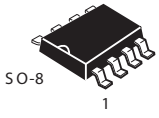
Nov 22, 2004 ver1.1

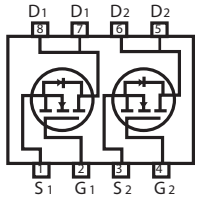
Dual N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V_{DSS}	I_D	$R_{DS(ON)}$ (mΩ) Max
20V	7.5 A	20 @ V_{GS} = 4.5V 30 @ V_{GS} = 2.5V

FEATURES

- Super high dense cell design for low $R_{DS(ON)}$.
- Rugged and reliable.
- Surface Mount Package.





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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	±20	V
Gate-Source Voltage	V_{GS}	±10	V
Drain Current-Continuous [a] @ T_J=25°C	I_D	7.5	A
-Pulsed [b] (300us Pulse Width)	I_{DM}	37.5	A
Drain-Source Diode Forward Current [a]	I_S	1.7	A
Maximum Power Dissipation [a]	P_D	2	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Ambient [a]	$R_{\theta JA}$	62.5	°C/W

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

Parameter	Symbol	Condition	Min	Typ [c]	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250uA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=16V, V_{GS}=0V			1	uA
Gate-Body Leakage	I_{GSS}	V_{GS}=±10V,V_{DS}=0V			±100	nA
ON CHARACTERISTICS [b]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	0.5	0.8	1.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D= 6A		16	20	m ohm
		V_{GS}=2.5V, I_D= 5.2A		24	30	m ohm
Forward Transconductance	g_{FS}	V_{DS} = 5.0V, I_D= 6.0A		16		S
DYNAMIC CHARACTERISTICS [c]						
Input Capacitance	C_{ISS}	V_{DS}=8V, V_{GS} = 0V f=1.0MHz		1303		pF
Output Capacitance	C_{OSS}			277		pF
Reverse Transfer Capacitance	C_{RSS}			222		pF
SWITCHING CHARACTERISTICS [c]						
Turn-On Delay Time	$t_{D(ON)}$	V_{DD} = 10V, I_D = 1A, V_{GEN} = 4.5V, R_L = 10 ohm R_{GEN} = 10 ohm		41.8		ns
Rise Time	t_r			10.1		ns
Turn-Off Delay Time	$t_{D(OFF)}$			80.7		ns
Fall Time	t_f			31.6		ns
Total Gate Charge	Q_g	V_{DS} =10V, I_D = 1A, V_{GS} =4.5V		19.6		nC
Gate-Source Charge	Q_{gs}			2.7		nC
Gate-Drain Charge	Q_{gd}			4.8		nC

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

Parameter	Symbol	Condition	Min	Typ[c]	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS [b]						
Diode Forward Voltage	V_{SD}	V_{GS} = 0V, Is =1.7A		0.8	1.2	V

Notes

a.Surface Mounted on FR4 Board, t≤10sec.
b.Pulse Test:Pulse Width≤300us, Duty Cycle≤ 2%.
c.Guaranteed by design, not subject to production testing.

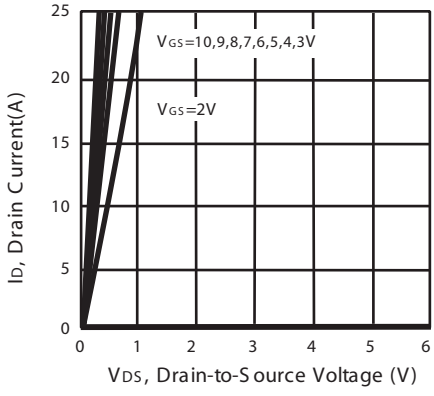

Figure 1. Output Characteristics

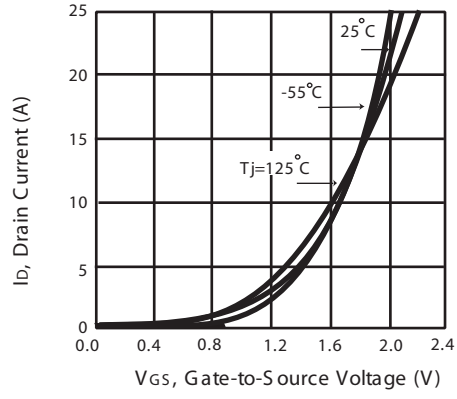

Figure 2. Transfer Characteristics

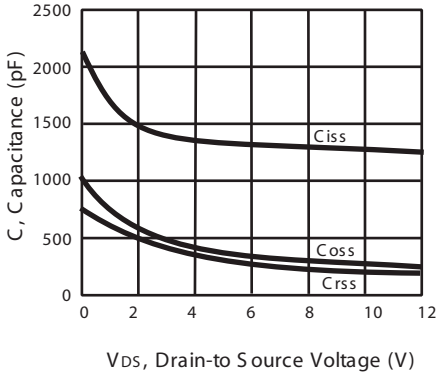

Figure 3. Capacitance

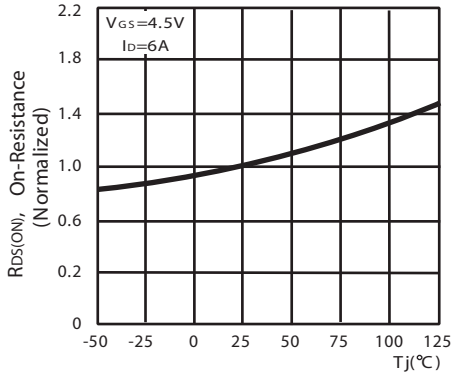

Figure 4. On-Resistance Variation with Temperature

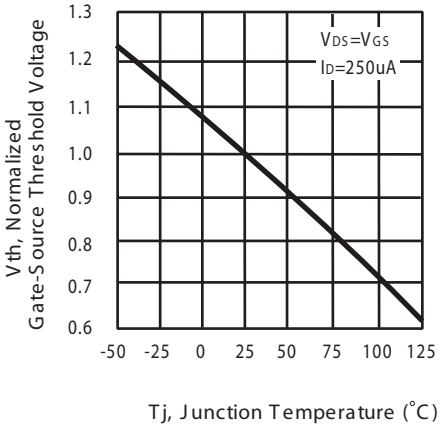

Figure 5. Gate Threshold Variation with Temperature

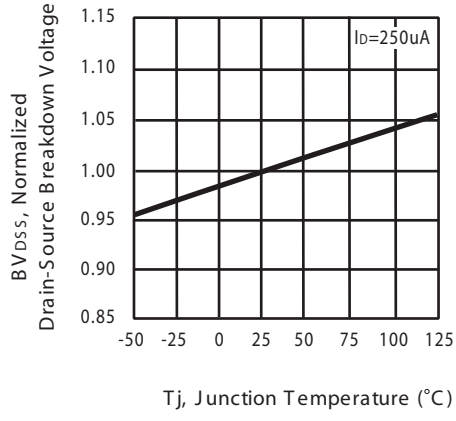

Figure 6. Breakdown Voltage Variation with Temperature

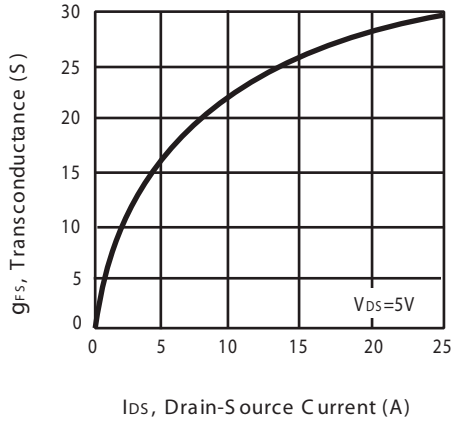

Figure 7. Transconductance Variation with Drain Current

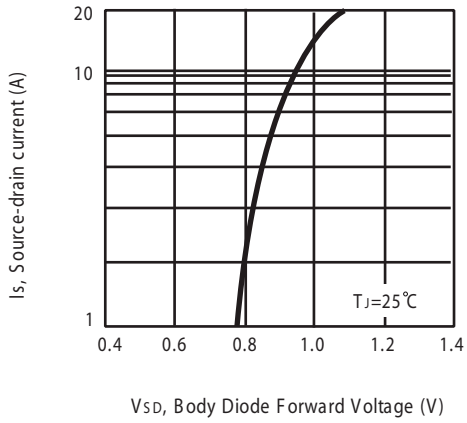

Figure 8. Body Diode Forward Voltage Variation with Source Current

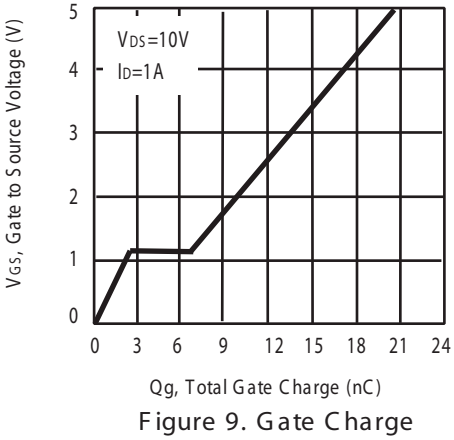

Figure 9. Gate Charge

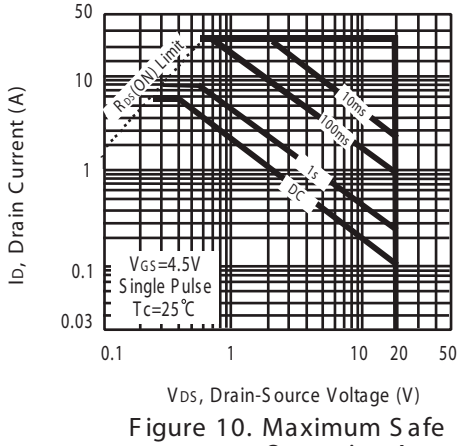

Figure 10. Maximum Safe Operating Area

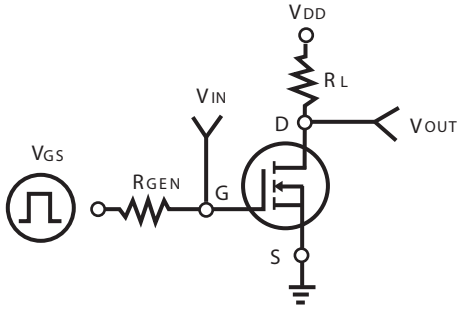

Figure 11. Switching Test Circuit

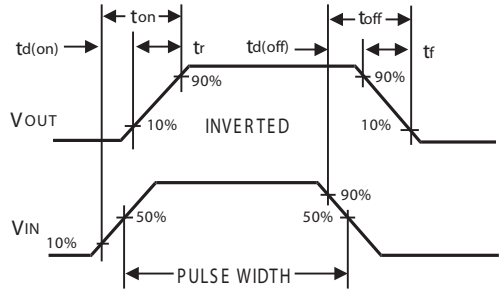

Figure 12. Switching Waveforms

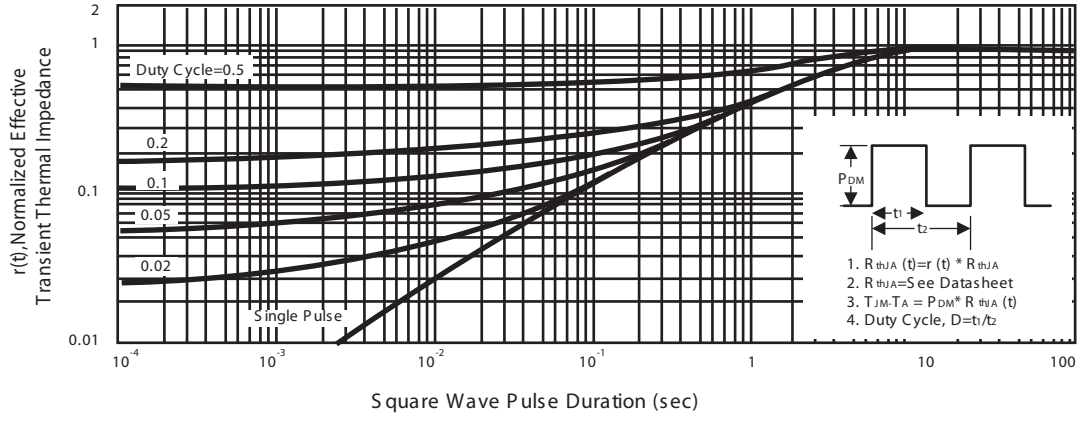

Figure 13. Normalized Thermal Transient Impedance Curve

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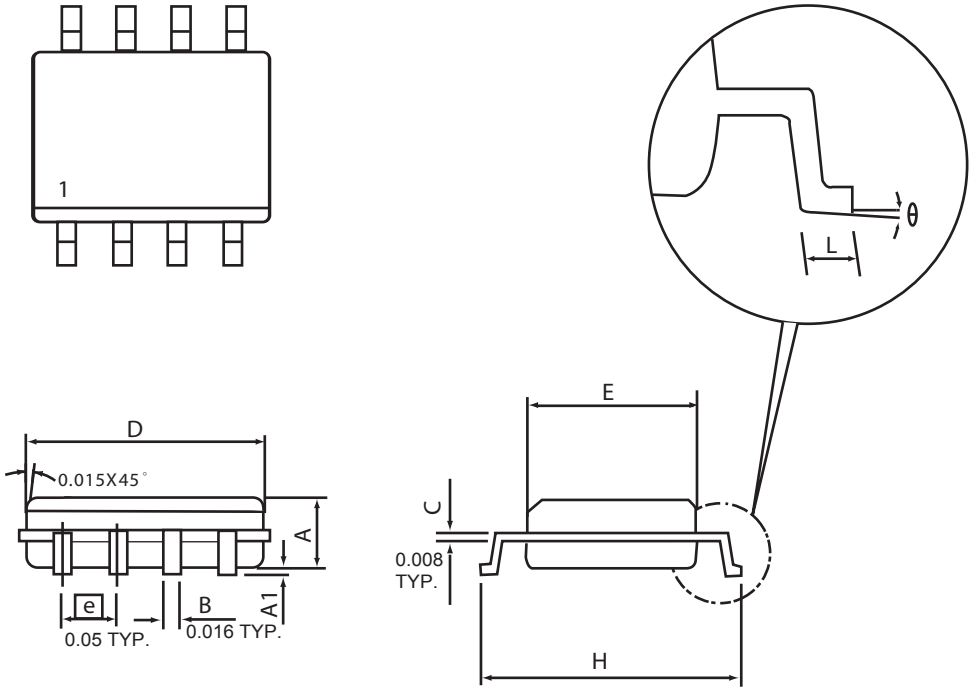
PACKAGE OUTLINE DIMENSIONS

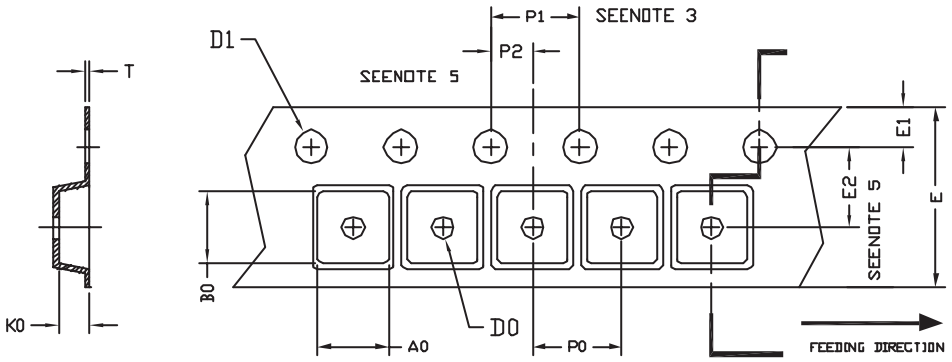
SO-8



SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
D	4.80	4.98	0.189	0.196
E	3.81	3.99	0.150	0.157
H	5.79	6.20	0.228	0.244
L	0.41	1.27	0.016	0.050
θ	0°	8°	0°	8°

SO-8 Tape and Reel Data

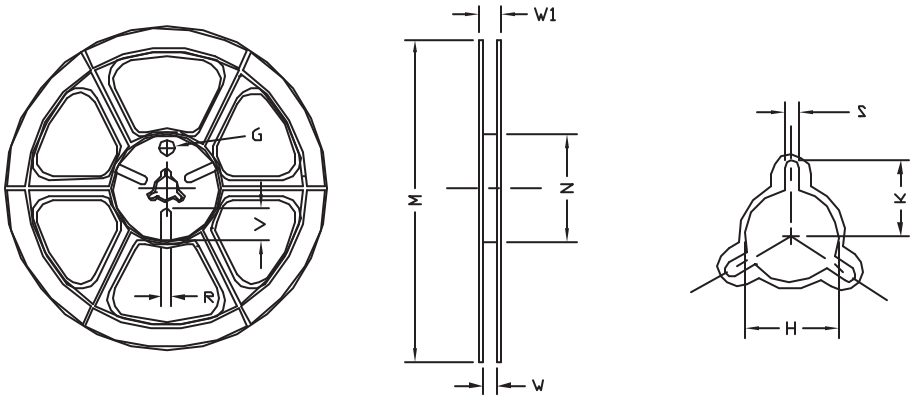
SO-8 Carrier Tape



unit:mm

PACKAGE	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
SOP 8N 150mil	6.40	5.20	2.10	ϕ1.5 (MIN)	ϕ1.5 + 0.1 - 0.0	12.0 ±0.3	1.75	5.5 ±0.05	8.0	4.0	2.0 ±0.05	0.3 ±0.05

SO-8 Reel



UNIT:mm

TAPE SIZE	REEL SIZE	M	N	W	W1	H	K	S	G	R	V
12 mm	ϕ330	330 ± 1	62 ±1.5	12.4 + 0.2	16.8 - 0.4	ϕ12.75 + 0.15	---	2.0 ±0.15	---	---	---