



SamHop Microelectronics Corp.

Ver 1.0

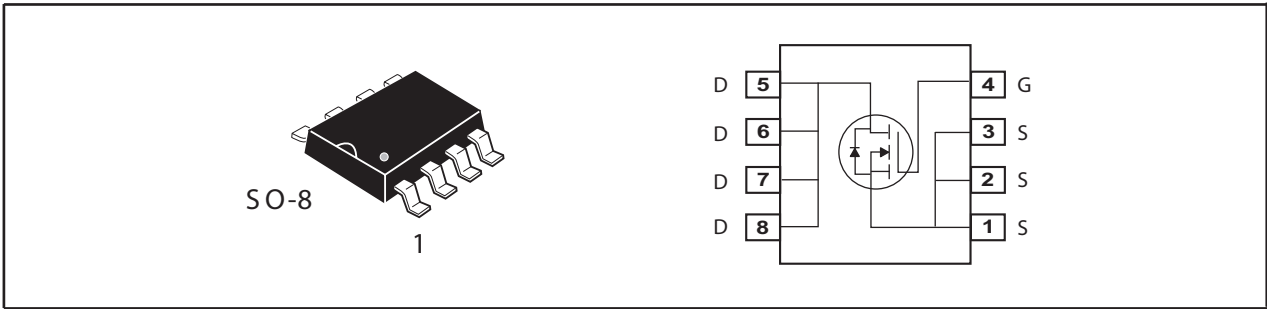
STM4886

N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V _{DS}	I _D	R _{DS(ON)} (mΩ) Max
30V	17A	5 @ V _{GS} =10V
		8 @ V _{GS} =4.5V

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)

Symbol	Parameter	Limit	Units
V _{DS}	Drain-Source Voltage	30	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current-Continuous ^a	17	A
I _{DM}	-Pulsed ^b	68	A
E _{AS}	Single Pulse Avalanche Energy ^d	181	mJ
P _D	Maximum Power Dissipation ^a	2.5	W
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 to 150	°C

THERMAL CHARACTERISTICS

R _{θJA}	Thermal Resistance, Junction-to-Ambient ^a	50	°C/W
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ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	30			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V , V _{GS} =0V			1	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±20V , V _{DS} =0V			±100	nA
ON CHARACTERISTICS						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1	1.7	3	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V , I _D =17A		3.8	5	m ohm
		V _{GS} =4.5V , I _D =13.5A		5.8	8	m ohm
g _{FS}	Forward Transconductance	V _{DS} =15V , I _D =17A		20		S
DYNAMIC CHARACTERISTICS °						
C _{ISS}	Input Capacitance	V _{DS} =15V,V _{GS} =0V f=1.0MHz		2500		pF
C _{OSS}	Output Capacitance			640		pF
C _{RSS}	Reverse Transfer Capacitance			440		pF
SWITCHING CHARACTERISTICS °						
t _{D(ON)}	Turn-On Delay Time	V _{DD} =15V I _D =17A V _{GS} =10V R _{GEN} =6 ohm		52		ns
t _r	Rise Time			85		ns
t _{D(OFF)}	Turn-Off Delay Time			82		ns
t _f	Fall Time			65		ns
Q _g	Total Gate Charge	V _{DS} =15V,I _D =17A,V _{GS} =10V		58		nC
		V _{DS} =15V,I _D =17A,V _{GS} =4.5V		28		nC
Q _{gs}	Gate-Source Charge	V _{DS} =15V,I _D =17A, V _{GS} =10V		5.4		nC
Q _{gd}	Gate-Drain Charge			17		nC
DRAIN-SOURCE DIODE CHARACTERISTICS °						
V _{SD}	Diode Forward Voltage	V _{GS} =0V,I _S =17A		0.73	1.2	V

Notes

- Surface Mounted on FR4 Board, t ≤ 10sec.
- Pulse Test: Pulse Width ≤ 300us, Duty Cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.
- Starting T_J=25°C, L=1.25mH, R_G=25Ω, I_{AS}=17A, V_{DD} = 30V. (See Figure13)

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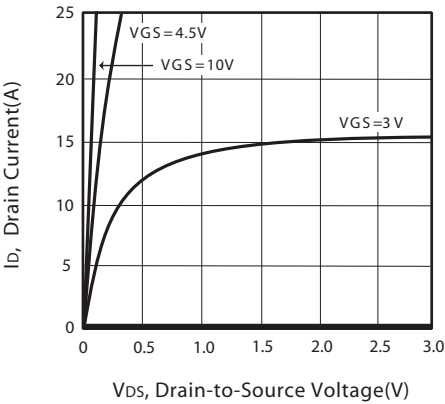


Figure 1. Output Characteristics

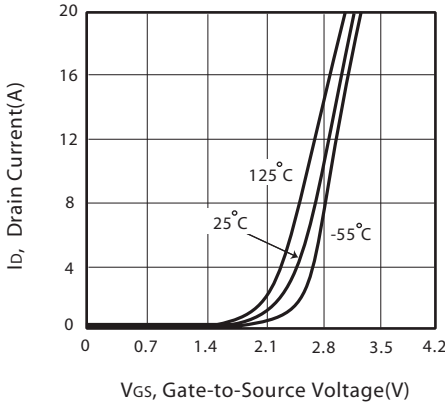


Figure 2. Transfer Characteristics

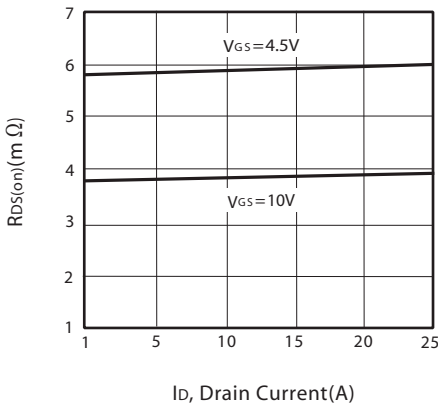


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

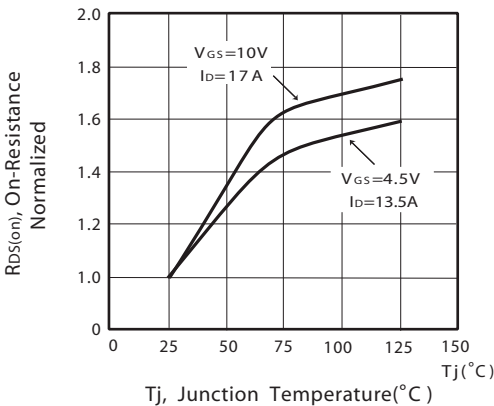


Figure 4. On-Resistance Variation with Drain Current and Temperature

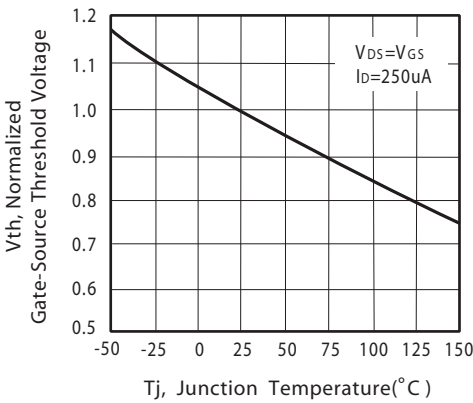


Figure 5. Gate Threshold Variation with Temperature

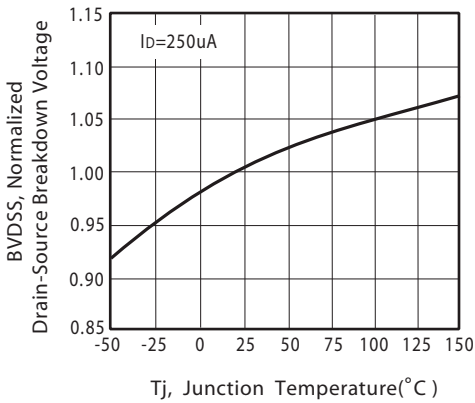


Figure 6. Breakdown Voltage Variation with Temperature

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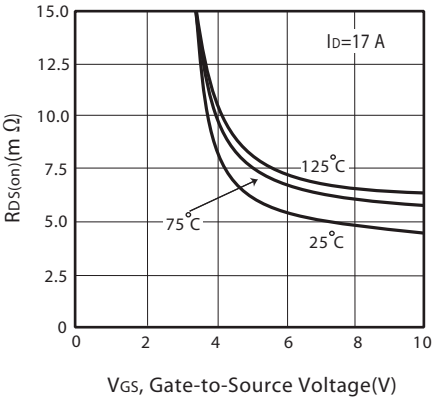


Figure 7. On-Resistance vs. Gate-Source Voltage

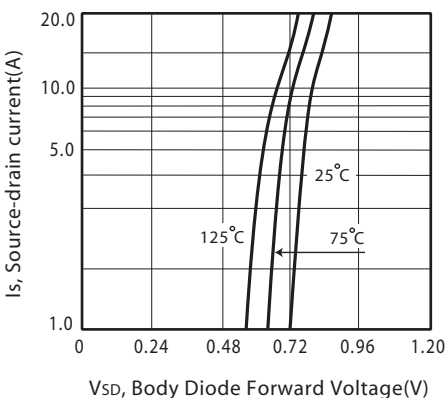


Figure 8. Body Diode Forward Voltage Variation with Source Current

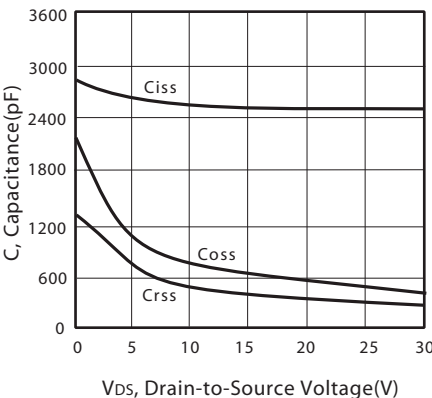


Figure 9. Capacitance

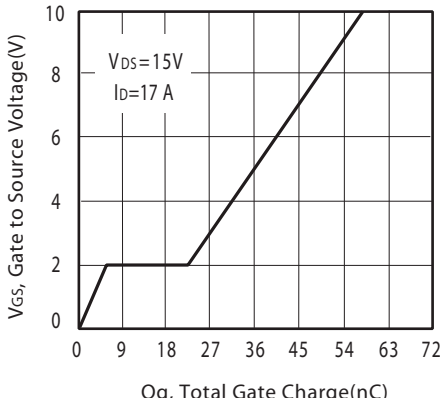


Figure 10. Gate Charge

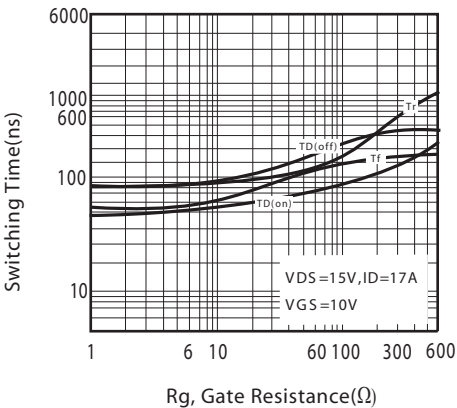


Figure 11. switching characteristics

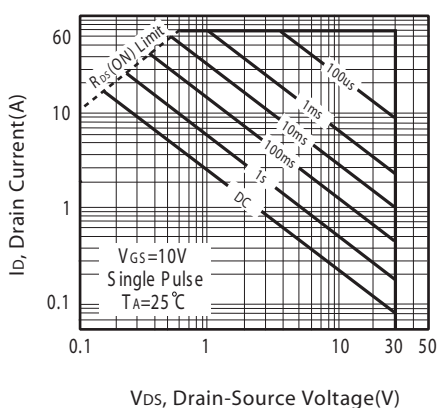
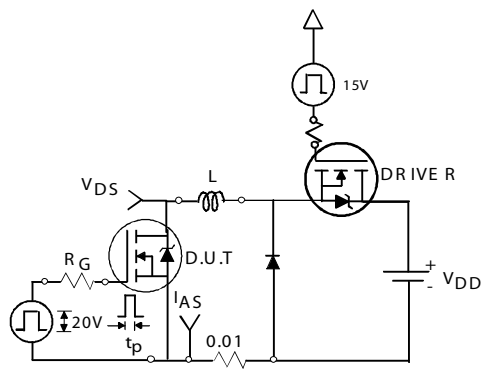


Figure 12. Maximum Safe Operating Area

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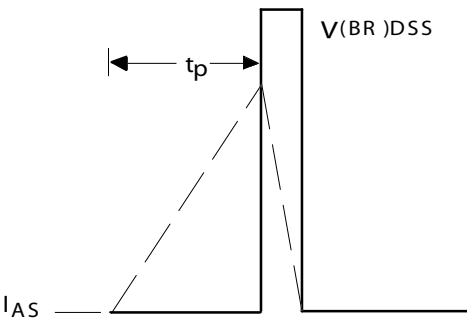
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Unclamped Inductive Test Circuit

Figure 13a.



Unclamped Inductive Waveforms

Figure 13b.

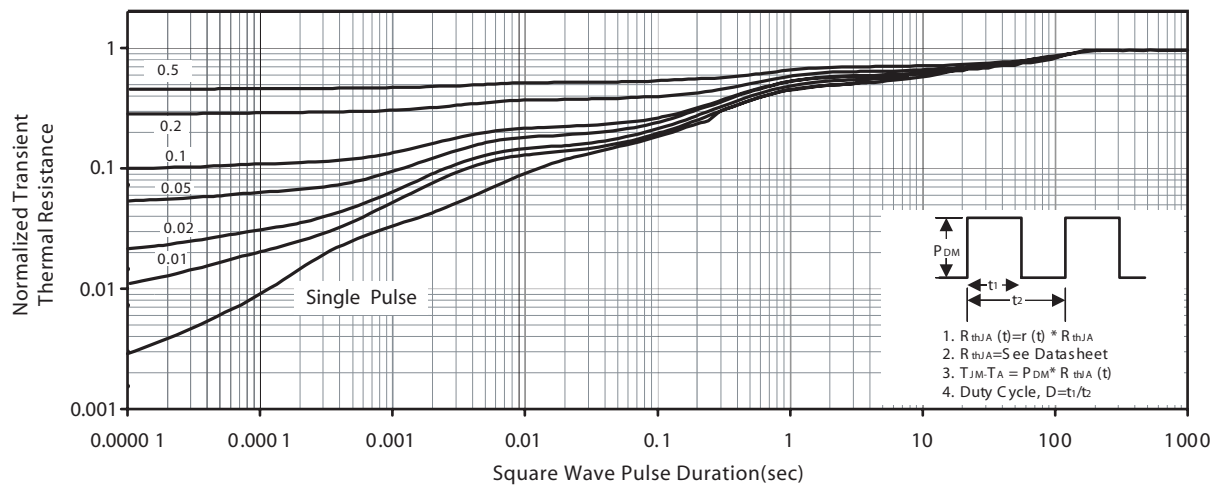


Figure 14. Normalized Thermal Transient Impedance Curve

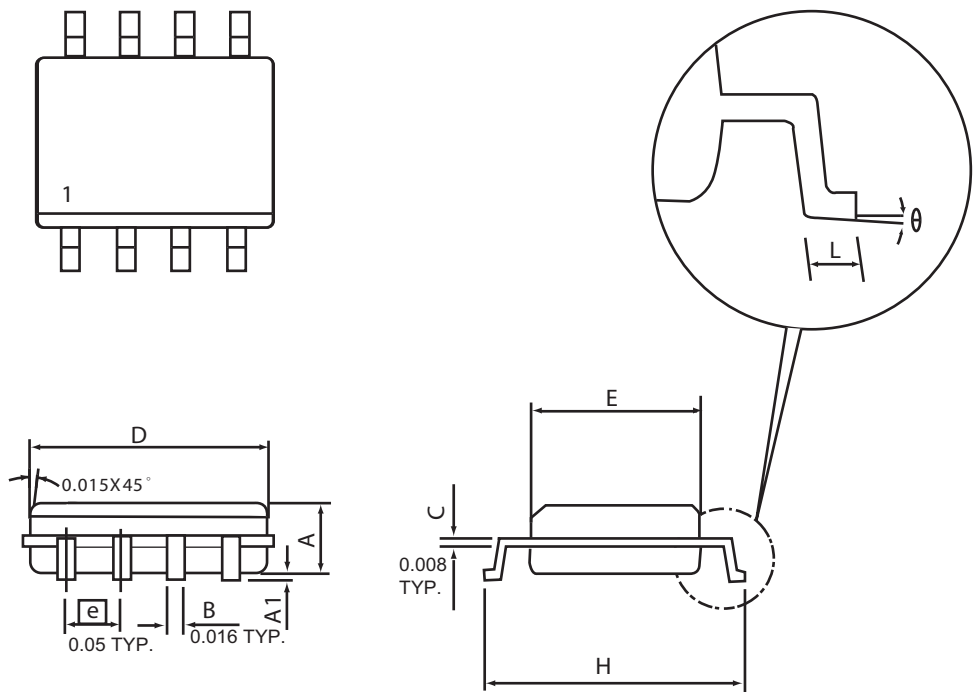
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PACKAGE OUTLINE DIMENSIONS

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°

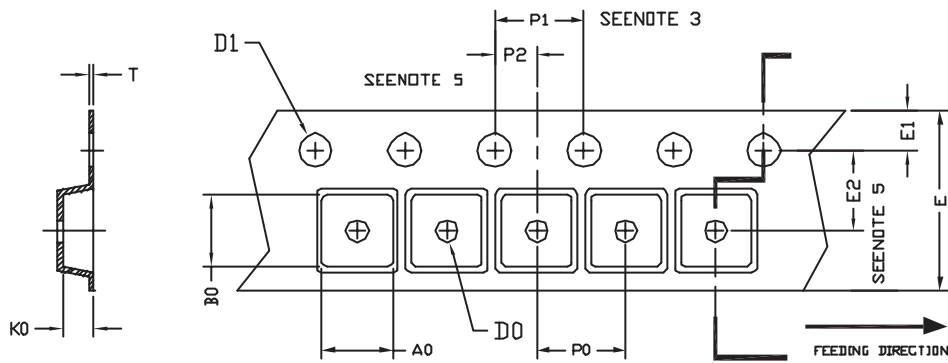
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SO-8 Tape and Reel Data

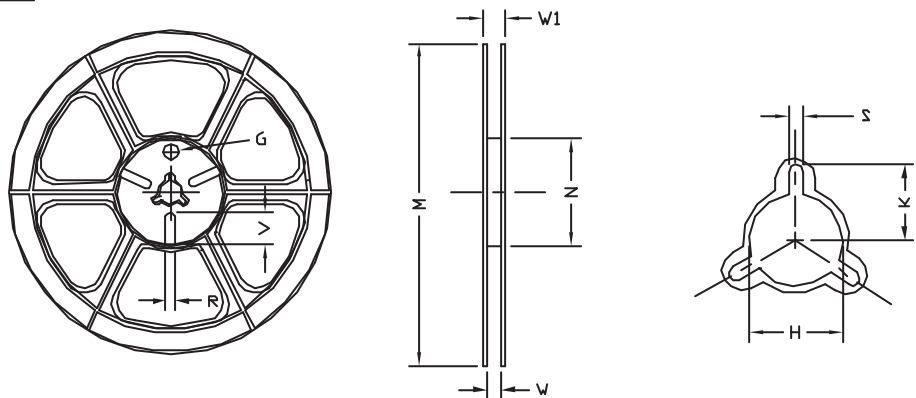
SO-8 Carrier Tape



unit:mm

PACKAGE	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
SOP 8N 150mil	6.40	5.20	2.10	$\phi 1.5$ (MIN)	$\phi 1.5$ + 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	$\phi 330$	330 ± 1	62 ± 1.5	12.4 + 0.2	16.8 - 0.4	$\phi 12.75$ + 0.15	---	2.0 ± 0.15	---	---	---

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