SamHop Microelectronics Corp.

STS8816

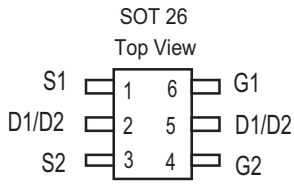
Ver 1.0

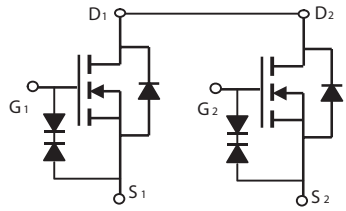
Dual N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V_{DSS}	I_D	$R_{DS(ON)}$ (mΩ) Max
20V	6A	21 @ VGS=4.5V
		30 @ VGS=2.5V

FEATURES

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





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

Symbol	Parameter		Limit	Units
V_{DS}	Drain-Source Voltage		20	V
V_{GS}	Gate-Source Voltage		±12	V
I_D	Drain Current-Continuous [a]	T_A=25°C	6	A
		T_A=70°C	4.8	A
I_{DM}	-Pulsed [b]		24	A
P_D	Maximum Power Dissipation [a]	T_A=25°C	1.25	W
		T_A=70°C	0.8	W
T_J, T_{STG}	Operating Junction and Storage Temperature Range		-55 to 150	°C

THERMAL CHARACTERISTICS

$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient [a]	100	°C/W

ELECTRICAL CHARACTERISTICS (T_A=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	20			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=16V , V_{GS}=0V			1	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS}= ±12V , V_{DS}=0V			±10	uA
ON CHARACTERISTICS						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D=250uA	0.5	0.85	1.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=4.5V , I_D=6A		17.5	21	m ohm
		V_{GS}=4V , I_D=5.9A		18	22	m ohm
		V_{GS}=3V , I_D=5.5A		21	26	m ohm
		V_{GS}=2.5V , I_D=5A		24	30	m ohm
g_{FS}	Forward Transconductance	V_{DS}=5V , I_D=6A		12		S
DYNAMIC CHARACTERISTICS [c]						
C_{ISS}	Input Capacitance	V_{DS}=10V,V_{GS}=0V f=1.0MHz		770		pF
C_{OSS}	Output Capacitance			175		pF
C_{RSS}	Reverse Transfer Capacitance			160		pF
SWITCHING CHARACTERISTICS [c]						
$t_{D(ON)}$	Turn-On Delay Time	V_{DD}=10V I_D=1A V_{GS}=4.5V R_{GEN}=10 ohm		20		ns
t_r	Rise Time			50		ns
$t_{D(OFF)}$	Turn-Off Delay Time			64		ns
t_f	Fall Time			40		ns
Q_g	Total Gate Charge	V_{DS}=10V,I_D=6A, V_{GS}=4.5V		11.5		nC
Q_{gs}	Gate-Source Charge			2		nC
Q_{gd}	Gate-Drain Charge			4.3		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
I_S	Maximum Continuous Drain-Source Diode Forward Current				1.3	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=1.3A		0.78	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.

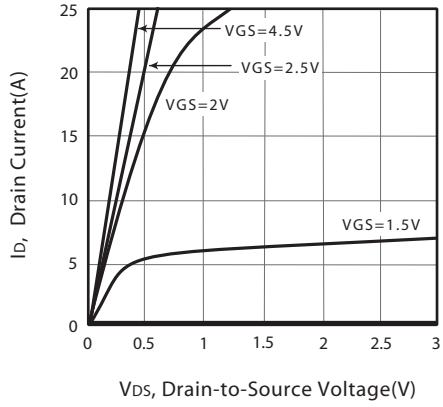


Figure 1. Output Characteristics

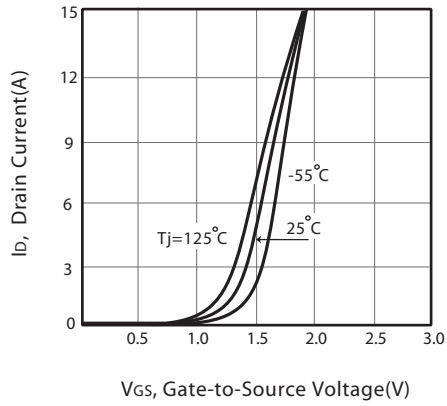


Figure 2. Transfer Characteristics

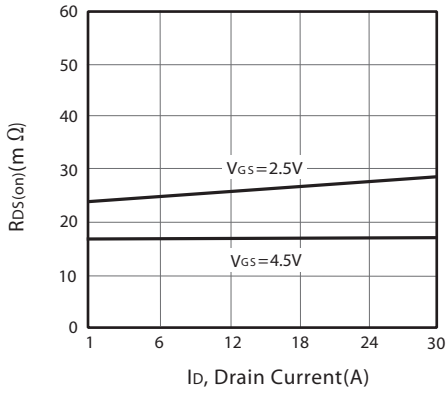


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

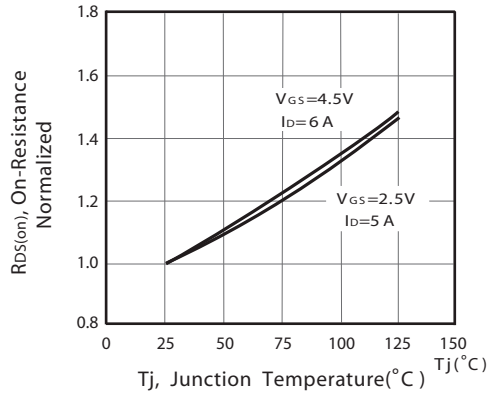


Figure 4. On-Resistance Variation with Drain Current and Temperature

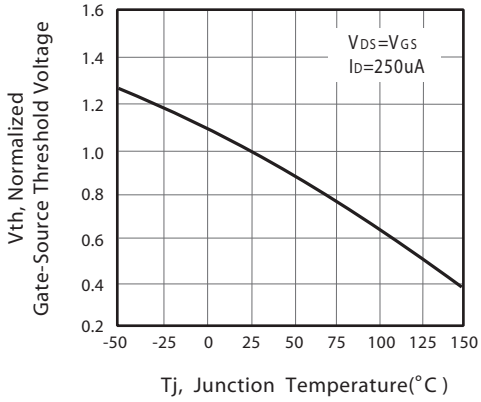


Figure 5. Gate Threshold Variation with Temperature

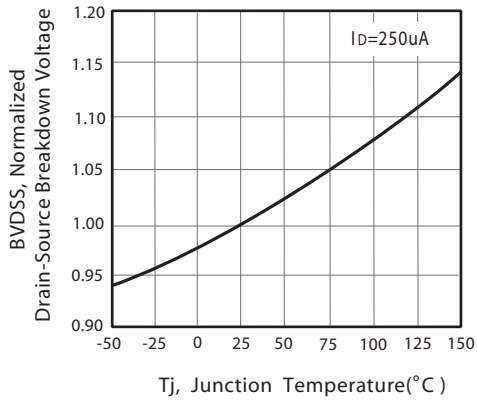


Figure 6. Breakdown Voltage Variation with Temperature

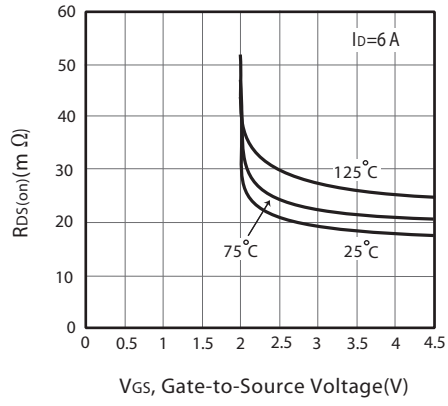


Figure 7. On-Resistance vs. Gate-Source Voltage

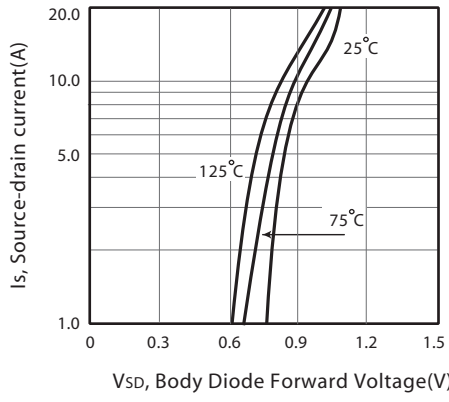


Figure 8. Body Diode Forward Voltage Variation with Source Current

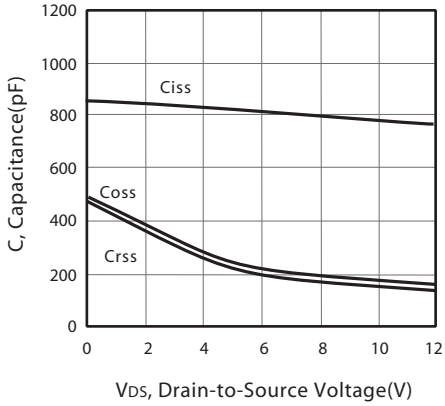


Figure 9. Capacitance

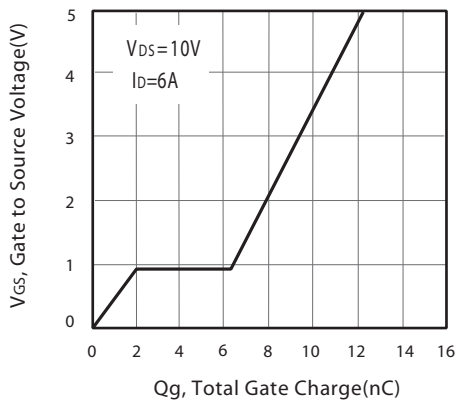


Figure 10. Gate Charge

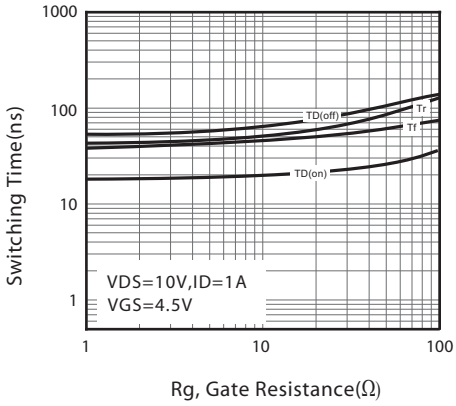


Figure 11. switching characteristics

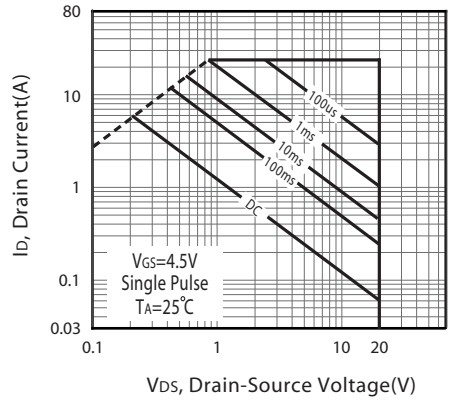


Figure 12. Maximum Safe Operating Area

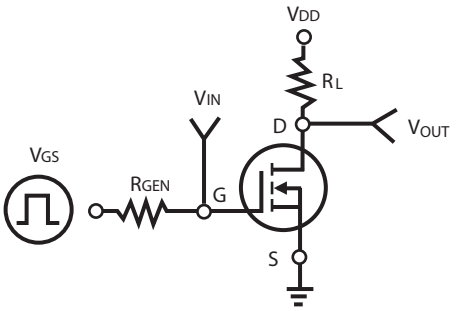


Figure 13. Switching Test Circuit

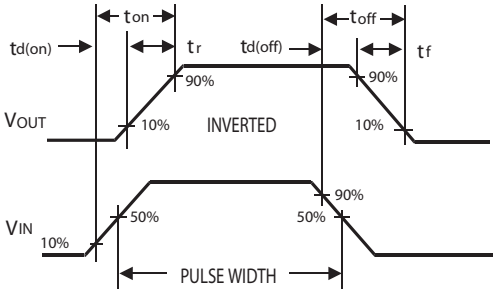
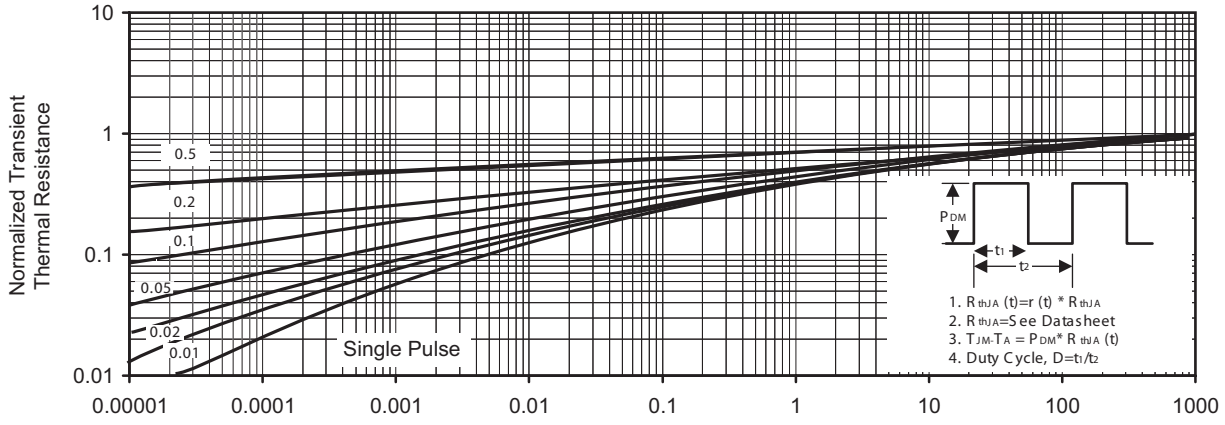


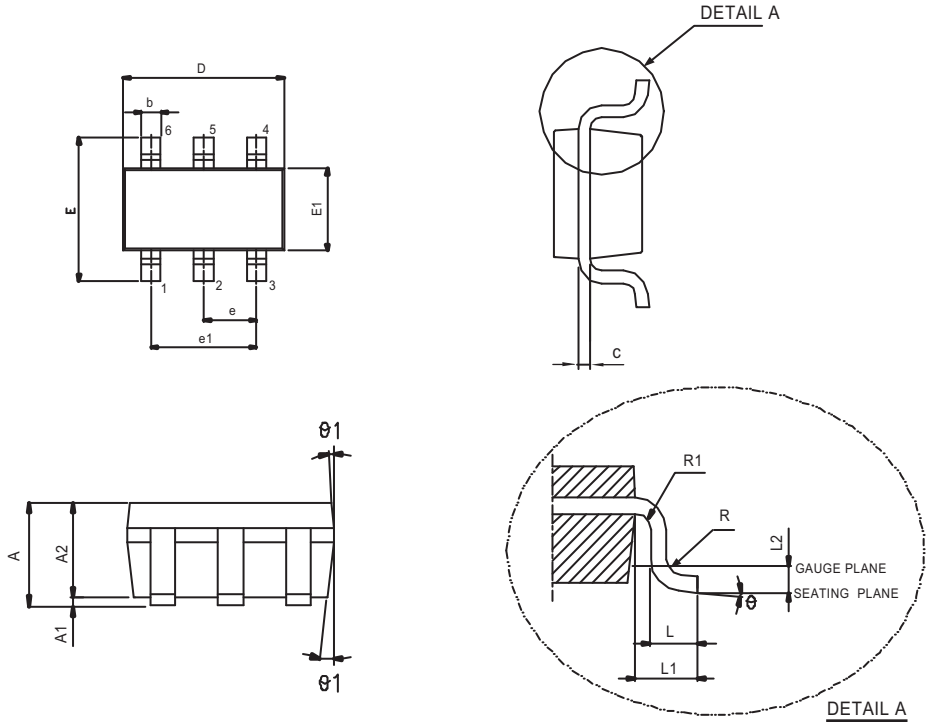
Figure 14. Switching Waveforms



Square Wave Pulse Duration(sec)
Normalized Thermal Transient Impedance Curve

PACKAGE OUTLINE DIMENSIONS

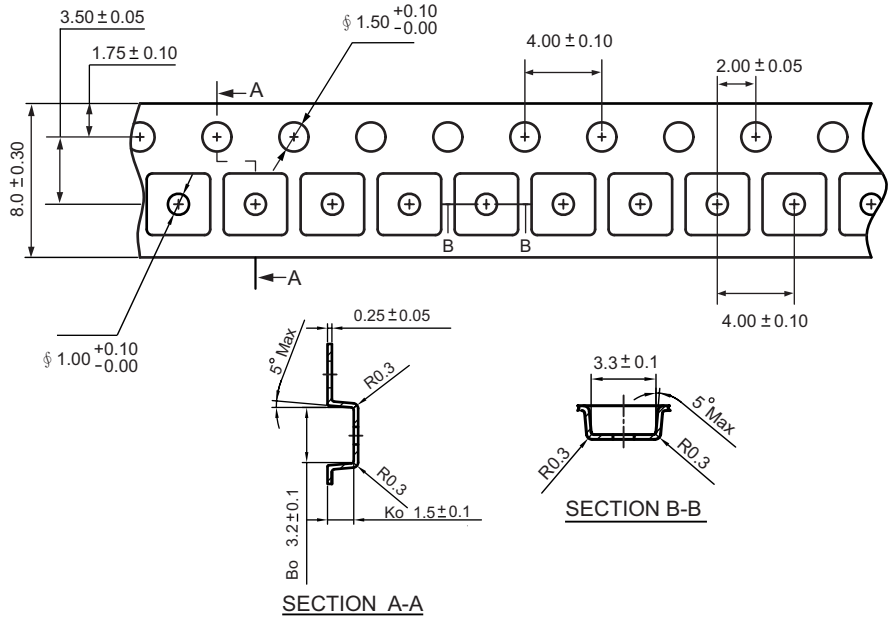
SOT 26



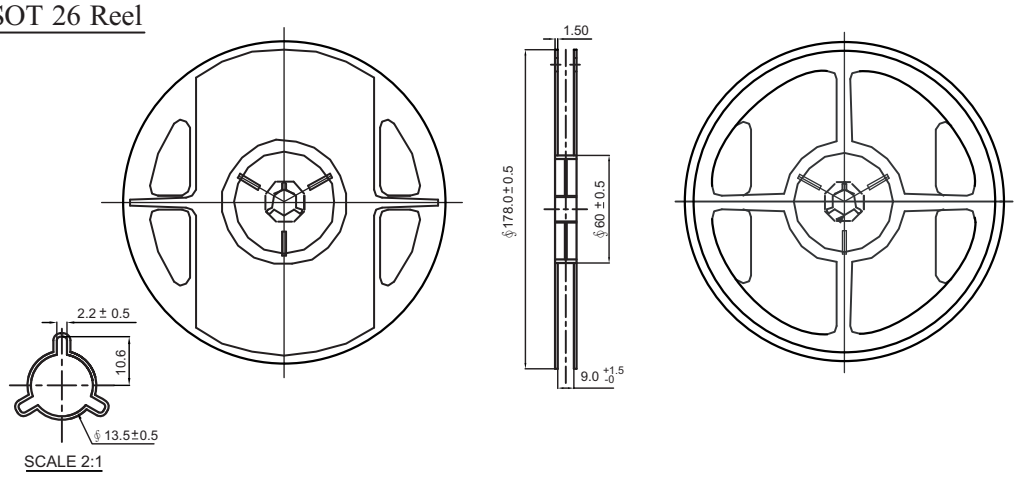
SYMBOL	MIN.	NOM.	MAX.
A	–	–	1.45
A1	–	–	0.15
A2	0.90	1.15	1.30
b	0.30	–	0.50
c	0.08	–	0.22
D		2.90 BSC.	
E		2.80 BSC.	
E1		1.60 BSC.	
e		0.95 BSC	
e1		1.90 BSC.	
L	0.30	0.45	0.60
L1		0.60 REF.	
L2		0.25 BSC.	
R	0 10	–	–
R1	0 10	–	0.25
θ	0°	4°	8°
θ1	5°	10°	15°

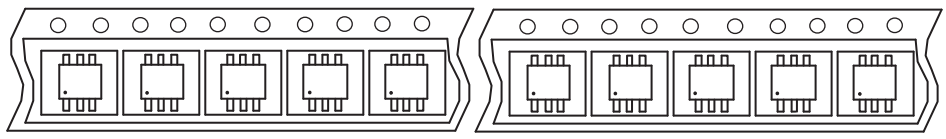
SOT 26 Tape and Reel Data

SOT 26 Carrier Tape



SOT 26 Reel





SOT 26