SamHop Microelectronics Corp.

SDT01N02

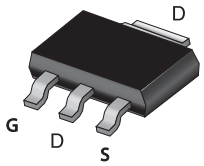
Ver 1.0

N-Channel Enhancement Mode Field Effect Transistor

PRODUCT SUMMARY		
V_{DSS}	I_D	$R_{DS(ON)}$ (Ω) Typ
200V	1.5A	3.5 @ VGS=10V

FEATURES

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



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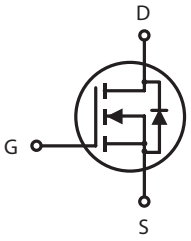

ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Symbol	Parameter		Limit	Units
V_{DS}	Drain-Source Voltage		200	V
V_{GS}	Gate-Source Voltage		±30	V
I_D	Drain Current-Continuous	T_A=25°C	1.5	A
I_{DM}	-Pulsed [a]		6	A
P_D	Maximum Power Dissipation [a]	T_A=25°C	2.98	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	42	°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	200			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=160V , V_{GS}=0V			1	uA
I_{GSS}	Gate-Body Leakage Current	V_{GS}= ±30V , V_{DS}=0V			±100	nA
ON CHARACTERISTICS						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D=250uA	2	2.9	4	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=10V , I_D=1A		3.5	4.0	ohm
g_{FS}	Forward Transconductance	V_{DS}=10V , I_D=1A		0.9		S
DYNAMIC CHARACTERISTICS [b]						
C_{ISS}	Input Capacitance	V_{DS}=25V,V_{GS}=0V f=1.0MHz		186		pF
C_{OSS}	Output Capacitance			31		pF
C_{RSS}	Reverse Transfer Capacitance			6.3		pF
SWITCHING CHARACTERISTICS [b]						
$t_{D(ON)}$	Turn-On Delay Time	V_{DD}=100V I_D=1A V_{GS}=10V R_{GEN}=25 ohm		13		ns
t_r	Rise Time			10		ns
$t_{D(OFF)}$	Turn-Off Delay Time			21		ns
t_f	Fall Time			5.5		ns
Q_g	Total Gate Charge	V_{DS}=100V,I_D=1A,V_{GS}=10V		4.4		nC
Q_{gs}	Gate-Source Charge	V_{DS}=100V,I_D=1A, V_{GS}=10V		1.2		nC
Q_{gd}	Gate-Drain Charge			1.6		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=1A		0.79	1.4	V

Notes

a.Pulse Test:Pulse Width < 300us, Duty Cycle < 2%.

b.Guaranteed by design, not subject to production testing.

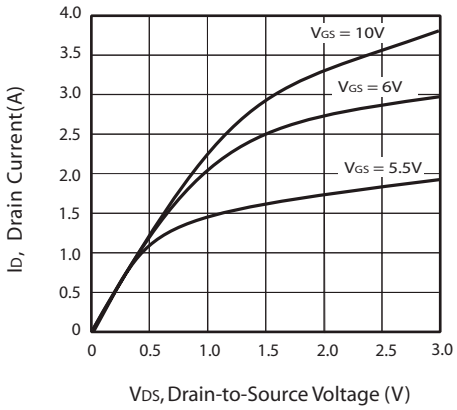

Figure 1. Output Characteristics

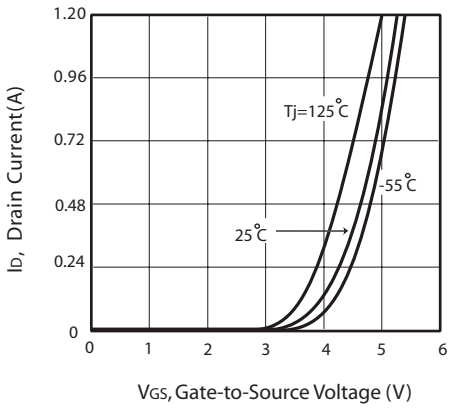

Figure 2. Transfer Characteristics

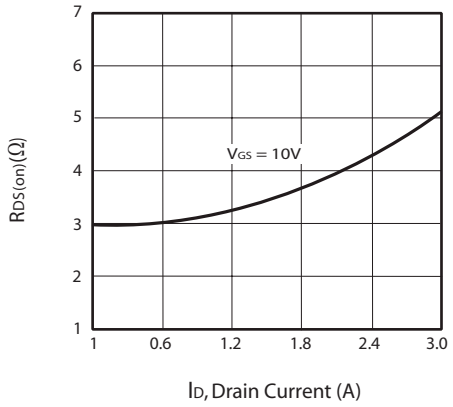

Figure 3. On-Resistance vs. Drain Current and Gate Voltage

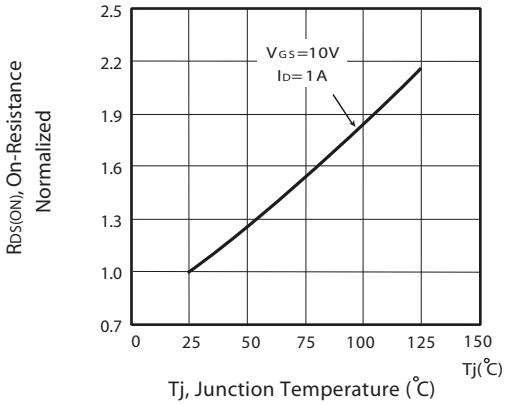

Figure 4. On-Resistance Variation with Drain Current and Temperature

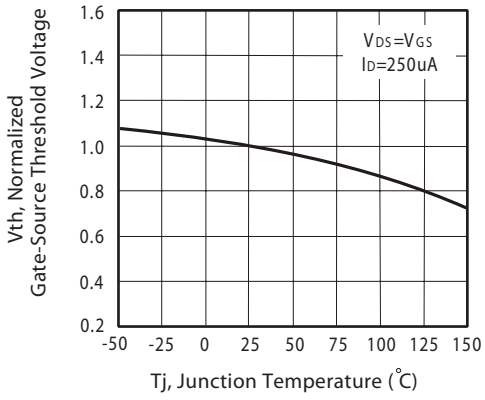

Figure 5. Gate Threshold Variation with Temperature

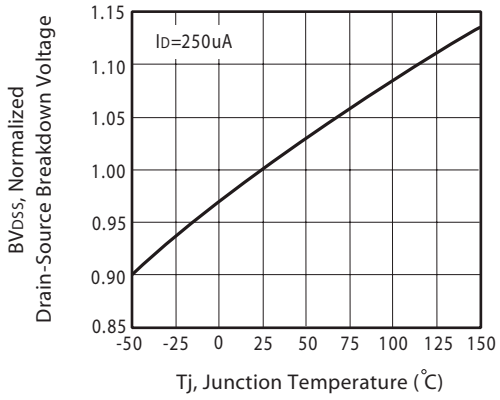

Figure 6. Breakdown Voltage Variation with Temperature

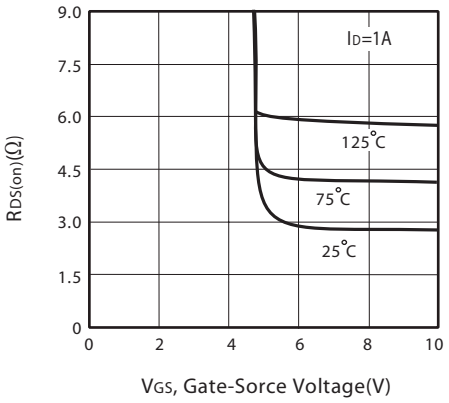

Figure 7. On-Resistance vs. Gate-Source Voltage

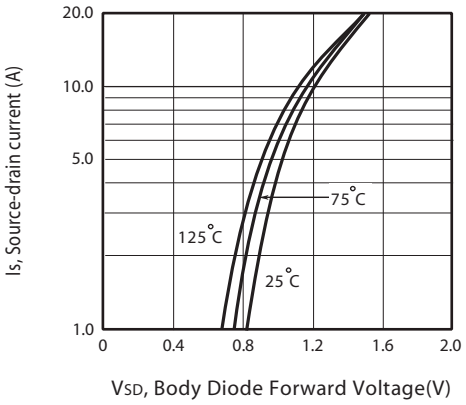

Figure 8. Body Diode Forward Voltage Variation with Source Current

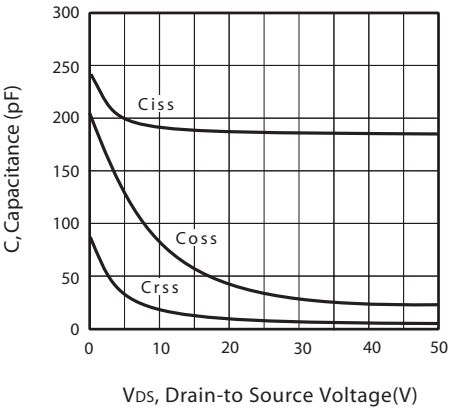

Figure 9. Capacitance

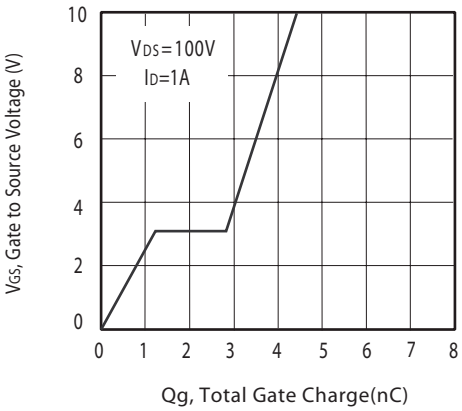

Figure 10. Gate Charge

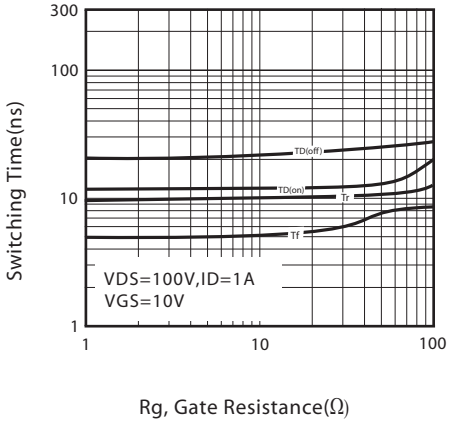

Figure 11. switching characteristics

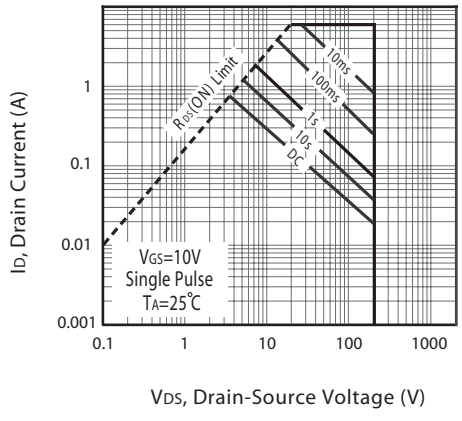

Figure 12. Maximum Safe Operating Area

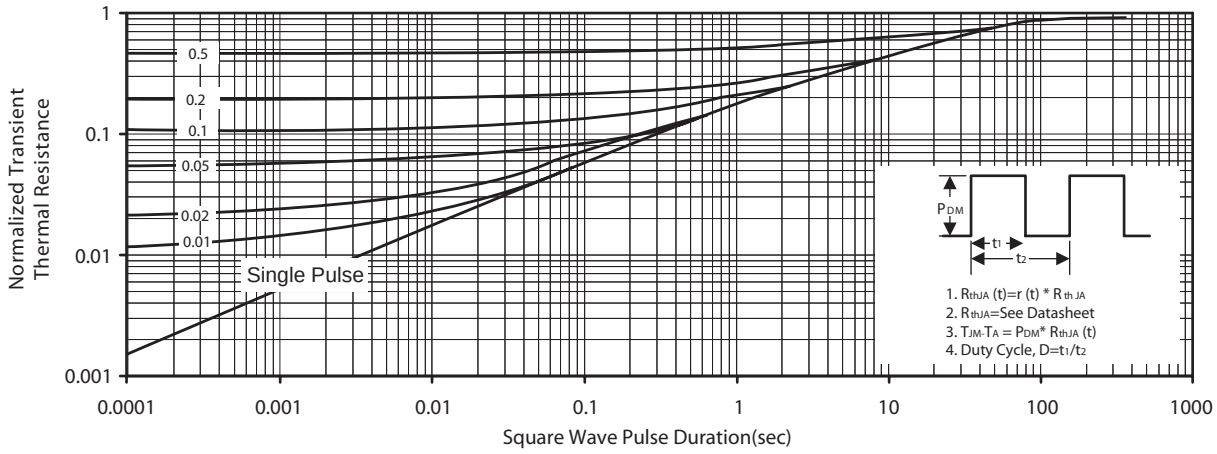

Figure 13. Normalized Thermal Transient Impedance Curve

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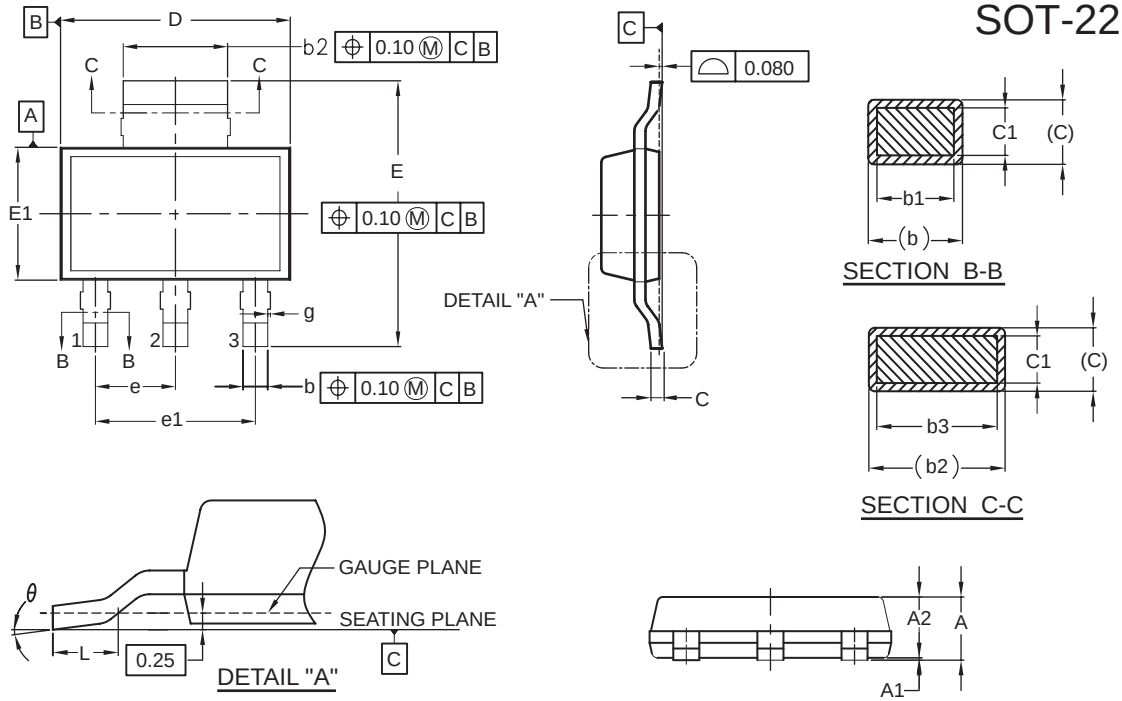
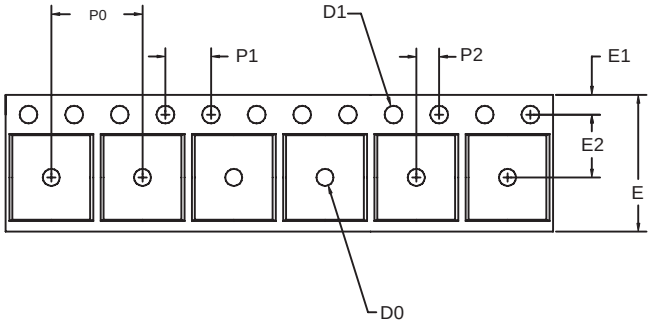
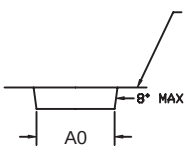


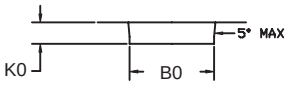
SYMBOL	COMMON					
	DIMENSIONS MILLIMETER			DIMENSIONS INCHE		
	MIN.	MOM.	MIN.	MIN.	MOM.	MAX.
A	—	—	1.80	—	—	0.0709
A1	0.02	—	0.10	0.0008	—	0.0039
A2	1.50	1.60	1.70	0.0591	0.0630	0.0669
b	0.66	0.76	0.84	0.0260	0.0300	0.0330
b1	0.60	0.71	0.79	0.0236	0.0280	0.0311
b2	2.90	3.00	3.10	0.1142	0.1181	0.1220
b3	2.84	2.95	3.05	0.1118	0.1161	0.1200
g	—	—	0.06	—	—	0.0020
c	0.23	0.30	0.35	0.0090	0.1181	0.1378
c1	0.23	0.28	0.33	0.0090	0.0110	0.0130
D	6.30	6.50	6.70	0.2480	0.2560	0.2638
E	6.70	7.00	7.30	0.2638	0.2760	0.2874
E1	3.30	3.50	3.70	0.1300	0.1378	0.1457
e	2.30 BSC			0.0906 BSC		
e1	4.60 BSC			0.1811 BSC		
L	0.81	—	—	0.0319	—	—
θ	0°	—	10°	0°	—	10°

SOT-223 Tape and Reel Data

SOT-223 Carrier Tape



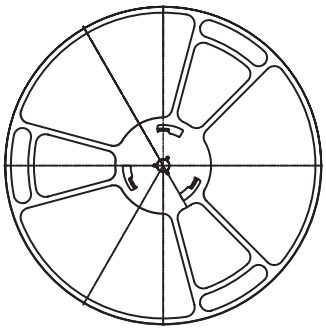


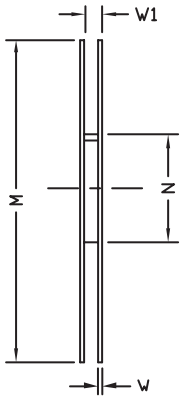


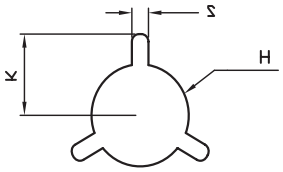
unit:㎜

PACKAGE	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
———	6.83 ±0.1	7.42 ±0.1	1.88 ±0.1	1.50 + 0.25	1.60 + 0.1	12.0 + 0.3 - 0.1	1.75 ±0.1	5.50 ±0.5	8.0 ±0.1	4.00 ±0.1	2.00 ±0.05	0.292 ±0.02

SOT-223 Reel







UNIT:㎜

REEL SIZE	M	N	W	W1	H	K	S	G	R	V
ϕ330 ± 0.5	———	ϕ97.0 ± 1.0	2.2	13.0 + 1.5	ϕ13.0 + 0.5 - 0.2	10.6	2.0 ±0.5	———	———	———