SamHop Microelectronics Corp.

SP8005

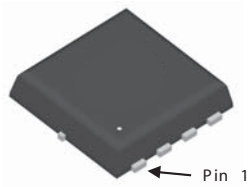
Ver 2.0

N-Channel Enhancement Mode Field Effect Transistor

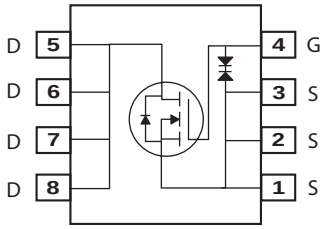
PRODUCT SUMMARY		
V_{DSS}	I_D	$R_{DS(ON)}$ (mΩ) Max
20V	32A	3.5 @ VGS=4.5V
		3.7 @ VGS=4.0V
		3.9 @ VGS=3.7V
		4.3 @ VGS=3.1V
		5.0 @ VGS=2.5V

FEATURES

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



TSON 3.3 x 3.3



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 d]	T_A=25°C	32	A
		T_A=70°C	25.6	A
I_{DM}	-Pulsed [b]		96	A
P_D	Maximum Power Dissipation [a]	T_A=25°C	1.67	W
		T_A=70°C	1.07	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]	75	°C/W

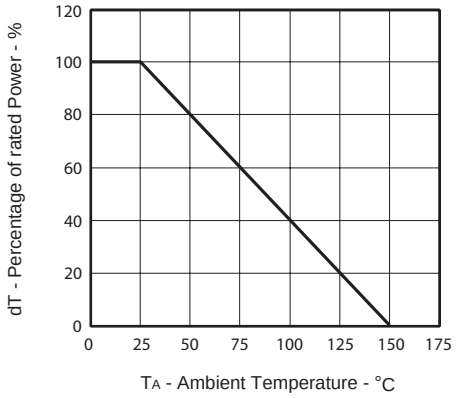
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

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=1.0mA	0.5	1.1	1.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=4.5V , I_D=16A	2.3	2.8	3.5	m ohm
		V_{GS}=4.0V , I_D=16A	2.5	3.0	3.7	m ohm
		V_{GS}=3.7V , I_D=16A	2.6	3.1	3.9	m ohm
		V_{GS}=3.1V , I_D=16A	2.8	3.3	4.3	m ohm
		V_{GS}=2.5V , I_D=16A	3.0	3.5	5.0	m ohm
g_{FS}	Forward Transconductance	V_{DS}=5V , I_D=16A		56		S
DYNAMIC CHARACTERISTICS [c]						
C_{ISS}	Input Capacitance	V_{DS}=10V,V_{GS}=0V f=1.0MHz		2550		pF
C_{OSS}	Output Capacitance			528		pF
C_{RSS}	Reverse Transfer Capacitance			470		pF
SWITCHING CHARACTERISTICS [c]						
$t_{D(ON)}$	Turn-On Delay Time	V_{DD}=16V I_D=16A V_{GS}=4.5V R_{GEN}= 6 ohm		62		ns
t_r	Rise Time			174		ns
$t_{D(OFF)}$	Turn-Off Delay Time			138		ns
t_f	Fall Time			73		ns
Q_g	Total Gate Charge	V_{DS}=16V,I_D=32A, V_{GS}=4.5V		30		nC
Q_{gs}	Gate-Source Charge			5.1		nC
Q_{gd}	Gate-Drain Charge			13.7		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V_{SD}	Diode Forward Voltage	V_{GS}=0V,I_S=32A		0.85	1.2	V

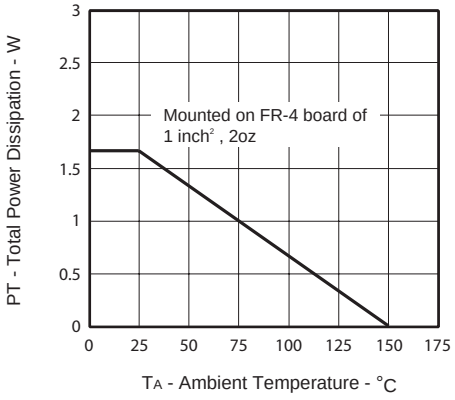
Notes

a.Surface Mounted on FR4 Board,t ≤ 10sec.
b.Pulse Test:Pulse Width ≤ 10us, Duty Cycle ≤ 1%.
c.Guaranteed by design, not subject to production testing.
d.Drain current limited by maximum juncting temperature.

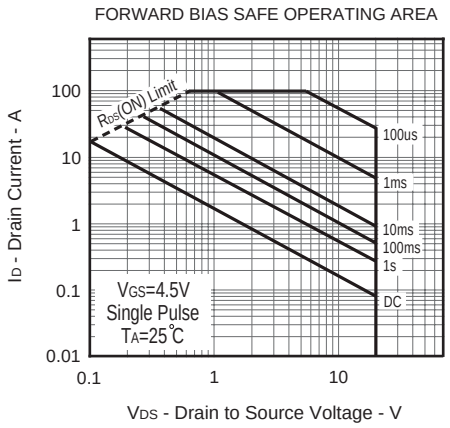
DERATING FACTOR OF FORWARD BIAS SAFE OPERATING AREA



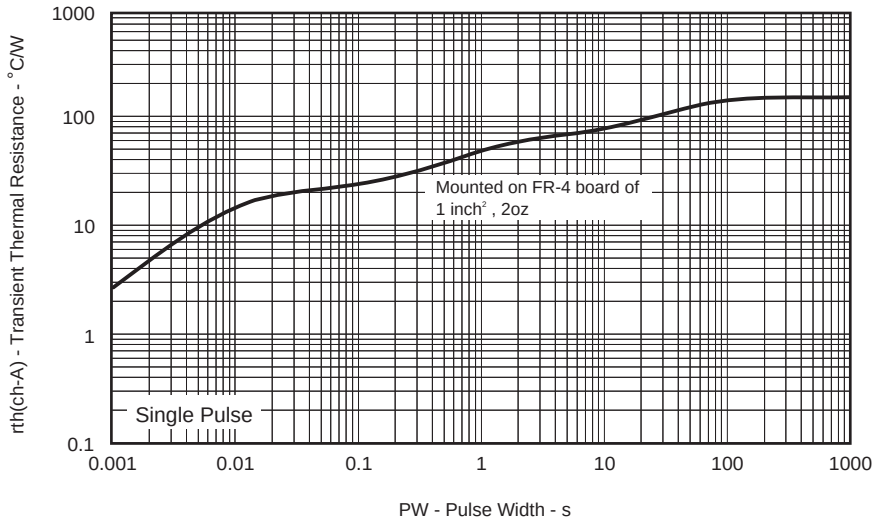
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



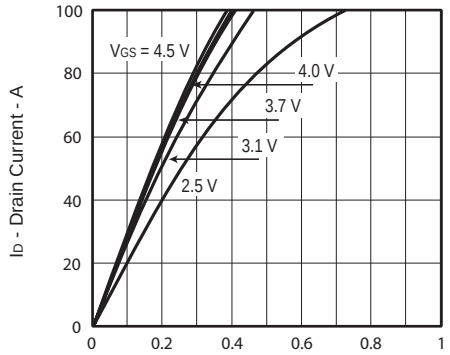
FORWARD BIAS SAFE OPERATING AREA



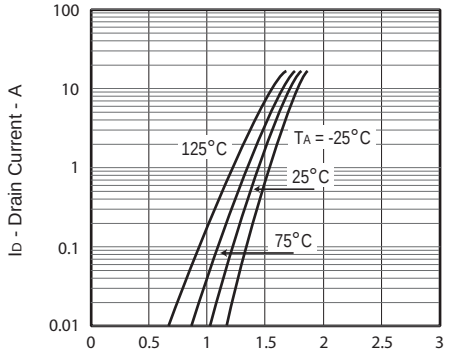
TRANSIENT THERMAL RESISTANCE vs. PULSE WIDTH



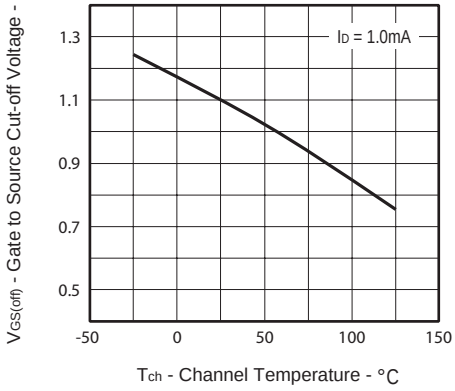
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



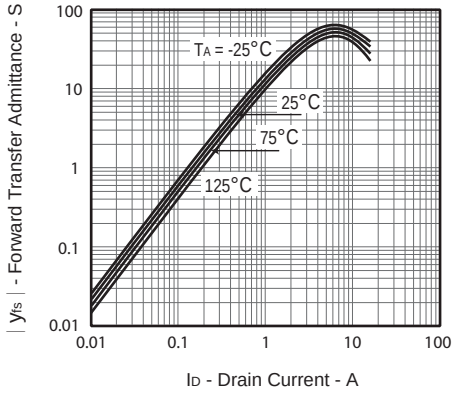
FORWARD TRANSFER CHARACTERISTICS



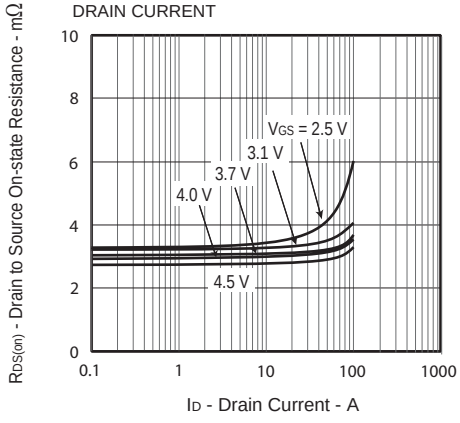
GATEBTO SOURE CUT-OFF VOLTAGE vs.
CHANNEL TEMPERATURE



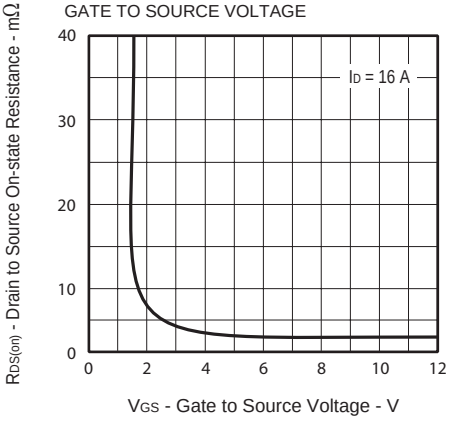
FORWARD TRANSFER ADMITTANCE vs.
DRAIN CURRENT



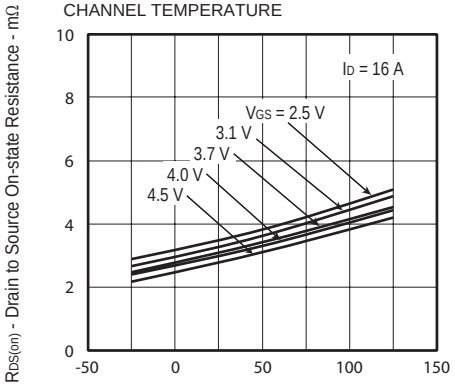
DRAIN TO SOURCE ON-STATE RESISTANCE vs.
DRAIN CURRENT



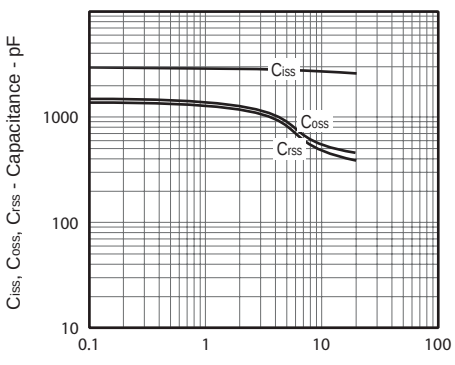
DRAIN TO SOURCE ON-STATE RESISTANCE vs.
GATE TO SOURCE VOLTAGE



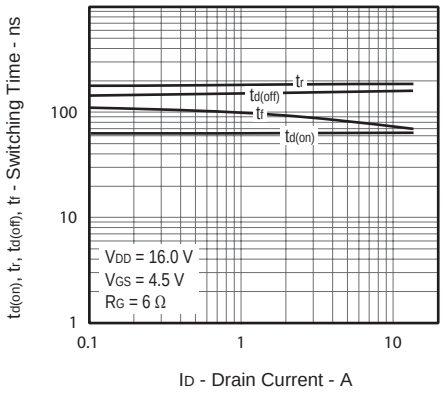
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE

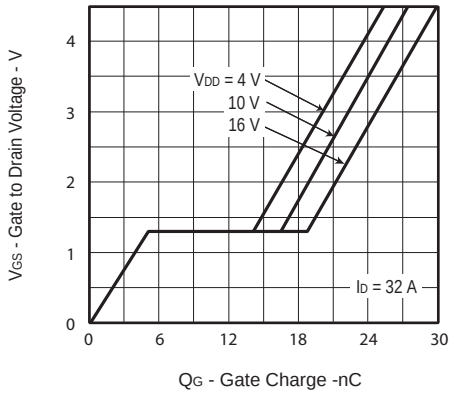


CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE

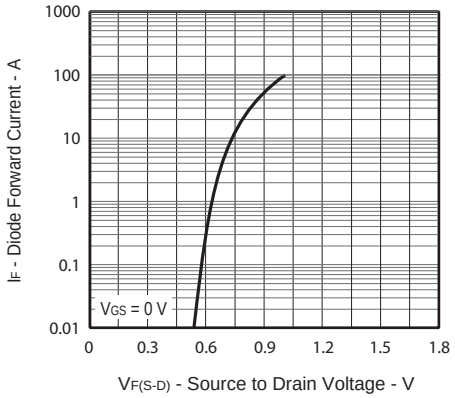


SWITCHING CHARACTERISTICS



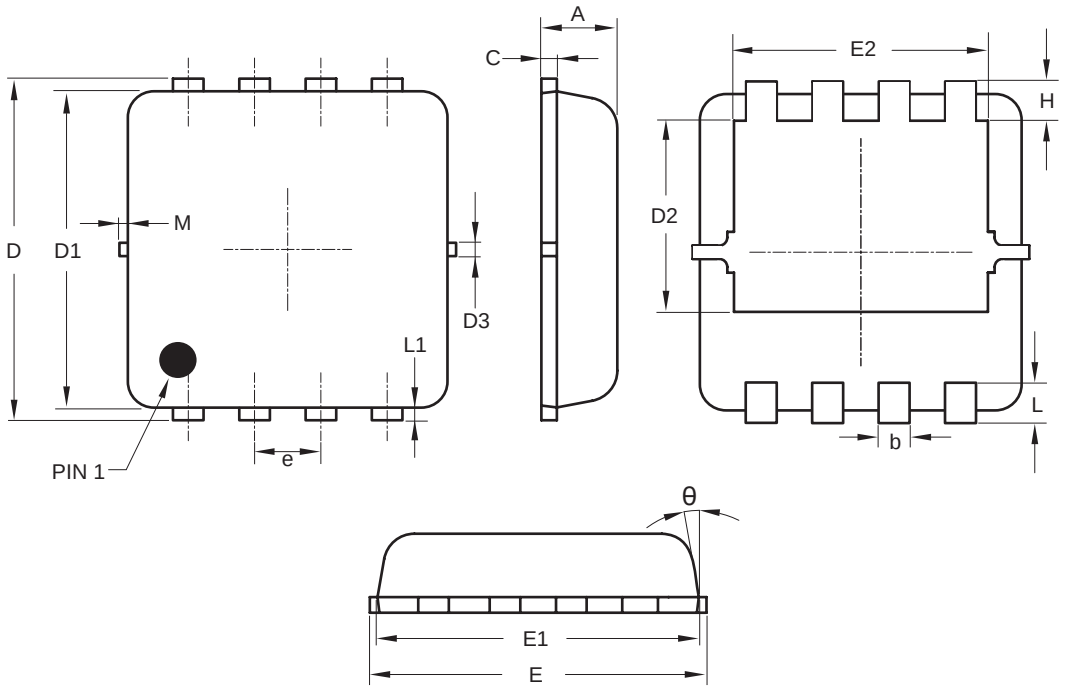


SOURCE TO DRAIN DIODE FORWARD VOLTAGE



PACKAGE OUTLINE DIMENSIONS

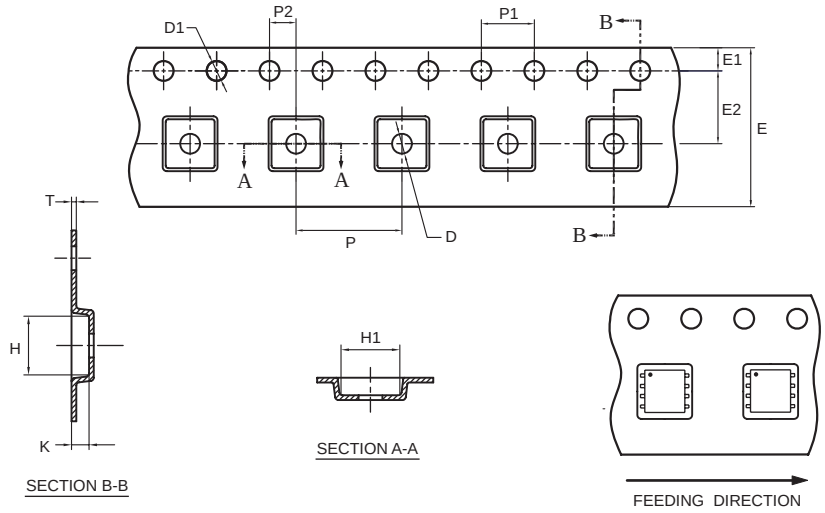
TSON 3.3 x 3.3



SYMBOLS	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
b	0.25	0.30	0.35
C	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	—	0.13	—
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65 BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	—	0.13	—
M	—	—	0.15
θ	—	10^o	12^o

TSON 3.3 x 3.3 Tape and Reel Data

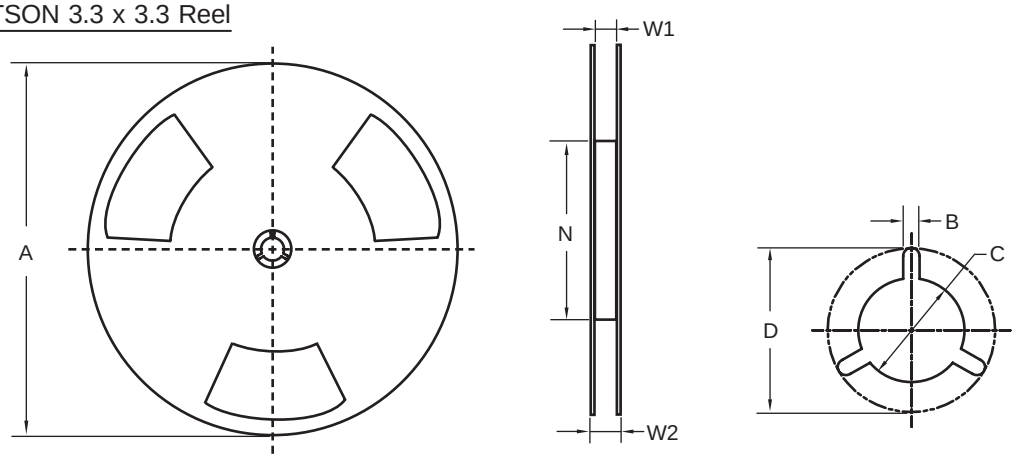
TSON 3.3 x 3.3 Tape



unit:㎜

PACKAGE	D	D1	E	E1	E2	H	H1	K	P	P1	P2	T
S mini 8	ϕ1.50 (MIN)	ϕ1.50 +0.10 - 0.00	12.0 +0.30 - 0.10	1.75 ±0.10	5.50 ±0.05	3.70 ±0.10	3.70 ±0.10	1.10 ±0.10	8.0 ±0.10	4.0 ±0.10	2.0 ±0.05	0.3 ±0.05

TSON 3.3 x 3.3 Reel



UNIT:㎜

TAPE SIZE	REEL SIZE	A	B	C	D	N	W1	W2
12 ㎜	13 "	330 ± 1.0	1.5 $^{+0.5}_{-0.2}$	ϕ13.0 $^{+0.5}_{-0.2}$	20.2(ref.)	178 $^{+0.0}_{-2.0}$	12.4 $^{+2.0}_{-0.0}$	18.4(ref.)

TOP MARKING DEFINITION

TSON 3.3 x 3.3

