

General Description

The HSS1207E is the high cell density trench P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The HSS1207E meet the RoHS and Green Product requirement with full function reliability approved.

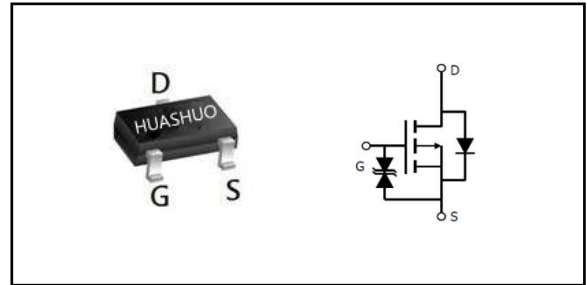
Product Summary

V_{DS}	-16	V
$R_{DS(ON),typ}$	21	mΩ
I_D	-7	A

Features

- Super Low Gate Charge
- Green Device Available
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology
- ESD Protect 2KV

SOT-23L Pin Configurations



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-16	V
V_{GS}	Gate-Source Voltage	±10	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current, $V_{GS} @ -4.5V(T_J=150^{\circ}C)^1$	-7	A
$I_D@T_C=70^{\circ}C$	Continuous Drain Current, $V_{GS} @ -4.5V(T_J=150^{\circ}C)^1$	-5.6	A
I_{DM}	Pulsed Drain Current ²	-28	A
$P_D@T_A=25^{\circ}C$	Total Power Dissipation ¹	1.4	W
$P_D@T_A=70^{\circ}C$	Total Power Dissipation ¹	0.9	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹	---	125	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-Case	---	80	°C/W

Note :

1.Surface mounted on 1" x 1" FR4 board.

2.Pulse width limited by maximum junction temperature.



Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-16	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ¹	V _{GS} =-4.5V, I _D =-7A	---	21	28	mΩ
		V _{GS} =-2.5V, I _D =-5A	---	37	50	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250μA	-0.45	-0.75	-1.2	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-16V, V _{GS} =0V, T _J =25°C	---	---	-1	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±10V, V _{DS} =0V	---	---	±10	μA
Q _g	Total Gate Charge	V _{DS} =-8V, V _{GS} =-4.5V, I _D =-7A	---	10.2	---	nC
Q _{gs}	Gate-Source Charge		---	1.9	---	
Q _{gd}	Gate-Drain Charge		---	3.3	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =-8V, V _{GS} =-4.5V, R _G =3.0Ω, I _D =-7A	---	10	---	ns
T _r	Rise Time		---	21	---	
T _{d(off)}	Turn-Off Delay Time		---	63	---	
T _f	Fall Time		---	35	---	
C _{iss}	Input Capacitance	V _{DS} =-8V, V _{GS} =0V, f=1MHz	---	921	---	pF
C _{oss}	Output Capacitance		---	220	---	
C _{rss}	Reverse Transfer Capacitance		---	193	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =-3.5A, T _J =25°C	---	---	-1.2	V

Note :

- 1.Surface mounted on 1" x 1" FR4 board.
- 2.Pulse width limited by maximum junction temperature.



Typical Characteristics

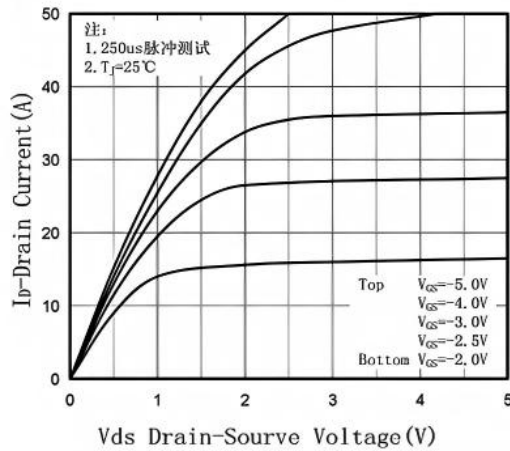


Fig.1 Output Characteristic

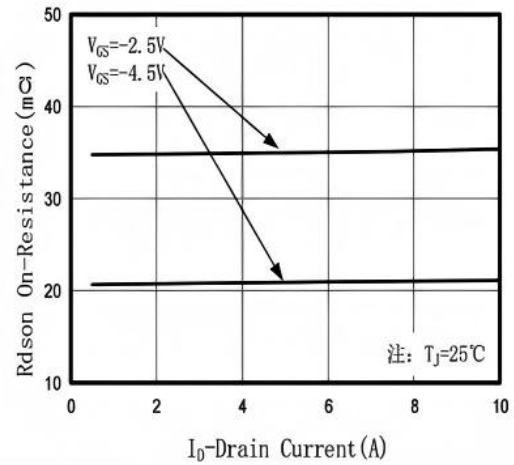


Fig.2 On-Resistance vs. Drain Current

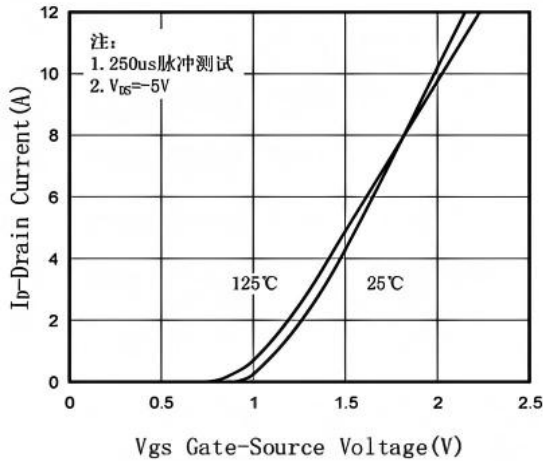


Fig.3 Transfer Characteristic

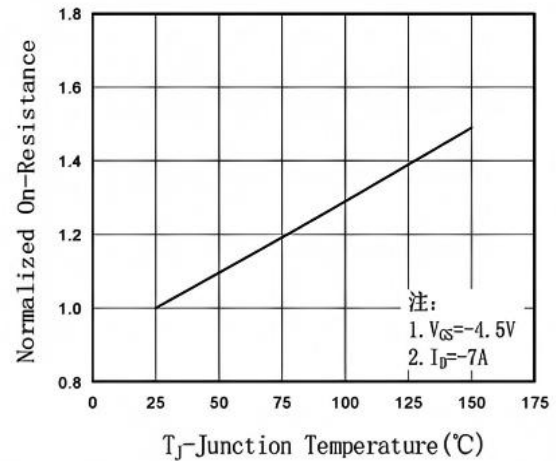


Fig.4 On-Resistance vs. Junction Temperature

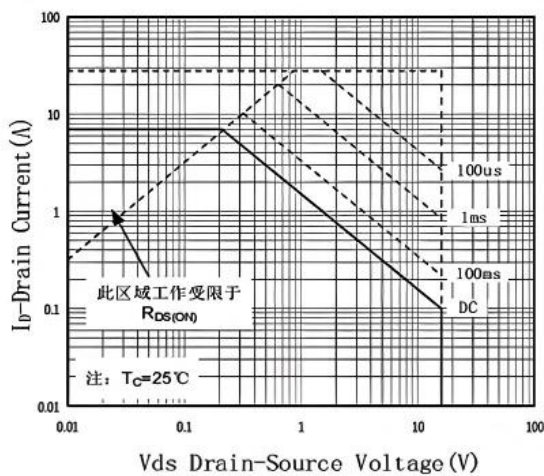


Fig.5 Safe Operation Area

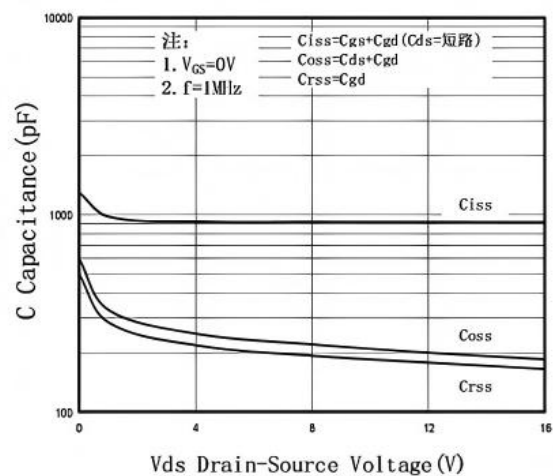


Fig.6 Capacitance Characteristic

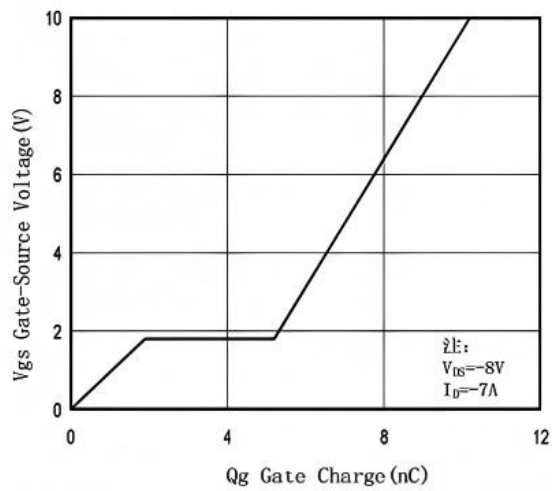


Fig.7 Gate-Charge Characteristic

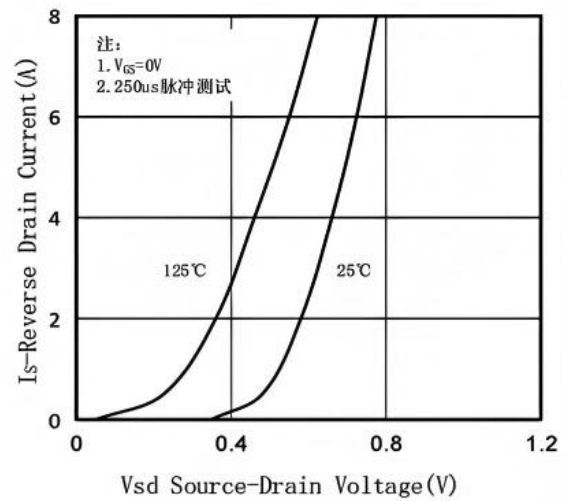


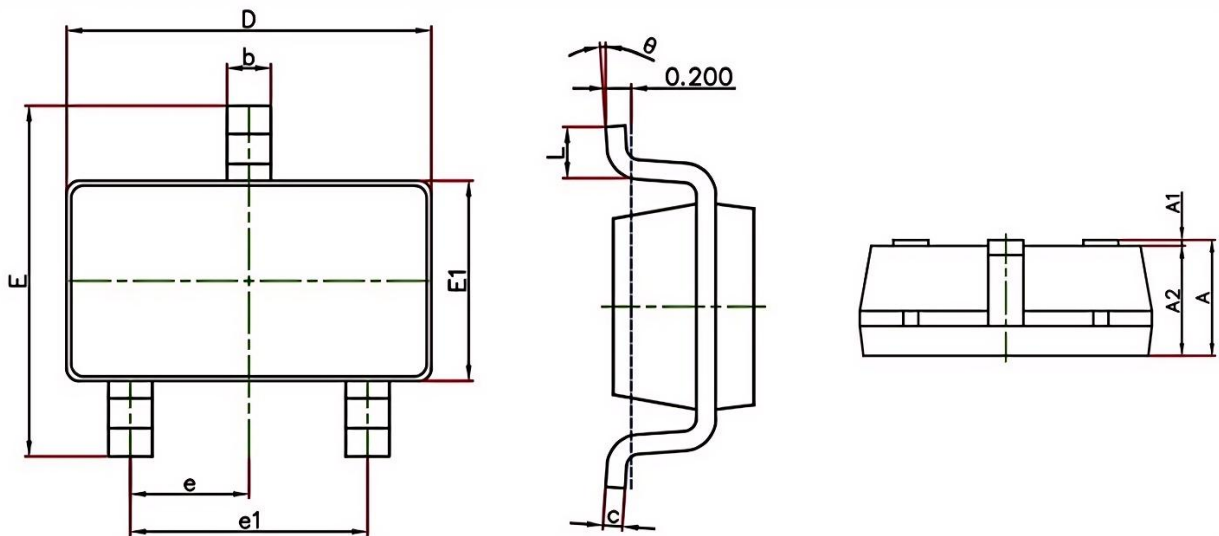
Fig.8 Body Diode Characteristic



Ordering Information

Part Number	Package code	Packaging
HSS1207E	SOT-23L	3000/Tape&Reel

SOT-23L Package Outline



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
C	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°



HSS1207E TOP Marking

