

Description

The HSS2P10 is the high cell density trench P-ch MOSFETs, which provides excellent RDSON and efficiency for most of the small power switching and load switch applications.

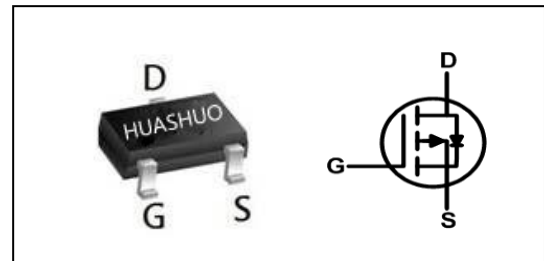
The HSS2P10 meets the RoHS and Green Product requirement with full function reliability approved.

- Super Low Gate Charge
- Excellent Cdv/dt effect decline
- Green Device Available
- Advanced high cell density Trench technology

Product Summary

V_{DS}	-100	V
$R_{DS(ON),typ}$	255	mΩ
I_D	-2	A

SOT23 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current, V_{GS} @ -10V ₁	-2	A
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current, V_{GS} @ -10V ₁	-1.5	A
I_{DM}	Pulsed Drain Current ₂	-8	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation ₃	1.4	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

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

Electrical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-100	---	---	V
$\Delta BV_{DSS}/\Delta T_J$	BVDSS Temperature Coefficient	Reference to 25°C , $I_D=-1mA$	---	-0.0624	---	V/ $^\circ\text{C}$
$R_{DS(ON)}$	Static Drain-Source On-Resistance ²	$V_{GS}=-10V$, $I_D=-2A$	---	255	320	m Ω
		$V_{GS}=-4.5V$, $I_D=-1A$	---	280	340	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1.0	-2.0	-3.0	V
$\Delta V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	4.5	---	mV/ $^\circ\text{C}$
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-80V$, $V_{GS}=0V$, $T_J=25^\circ\text{C}$	---	---	10	μA
		$V_{DS}=-80V$, $V_{GS}=0V$, $T_J=55^\circ\text{C}$	---	---	100	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
Q_g	Total Gate Charge (-4.5V)	$V_{DS}=-50V$, $V_{GS}=-10V$, $I_D=-2A$	---	15	---	nC
Q_{gs}	Gate-Source Charge		---	3.4	---	
Q_{gd}	Gate-Drain Charge		---	2.8	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-50V$, $V_{GS}=-10V$, $R_G=3.3\Omega$ $I_D=-1A$	---	7.3	---	ns
T_r	Rise Time		---	47	---	
$T_{d(off)}$	Turn-Off Delay Time		---	34	---	
T_f	Fall Time		---	39	---	
C_{iss}	Input Capacitance	$V_{DS}=-50V$, $V_{GS}=0V$, $f=1MHz$	---	900	---	pF
C_{oss}	Output Capacitance		---	48	---	
C_{rss}	Reverse Transfer Capacitance		---	43	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current ^{1,4}	$V_G=V_D=0V$, Force Current	---	---	-2	A
I_{SM}	Pulsed Source Current ^{2,4}		---	---	-8	A
V_{SD}	Diode Forward Voltage ²	$V_{GS}=0V$, $I_S=-1A$, $T_J=25^\circ\text{C}$	---	---	-1.2	V

Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3.The power dissipation is limited by 150°C junction temperature
- 4.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

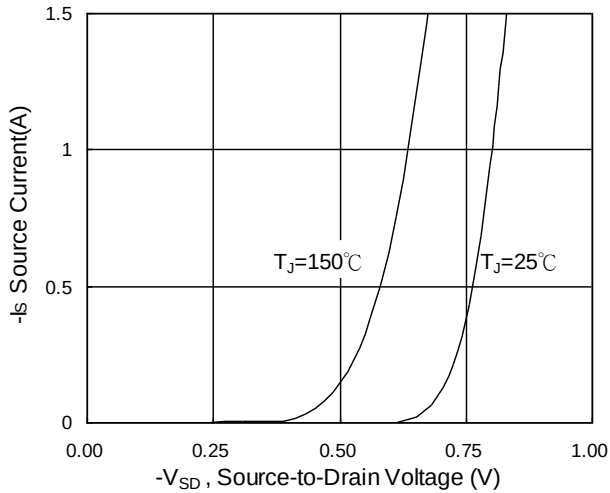


Fig.1 Forward Characteristics Of Reverse

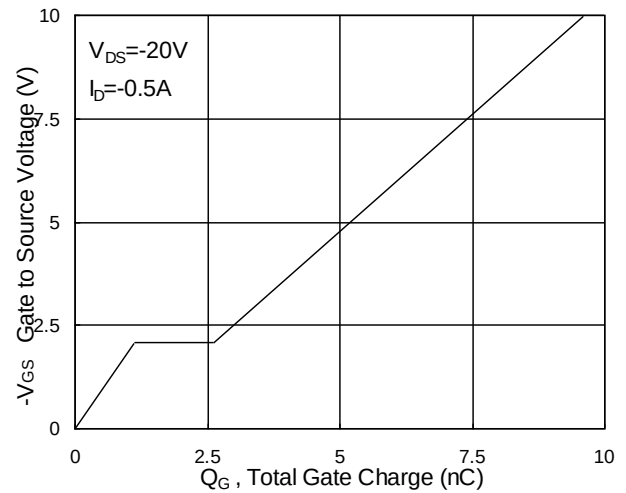


Fig.2 Gate-Charge Characteristics

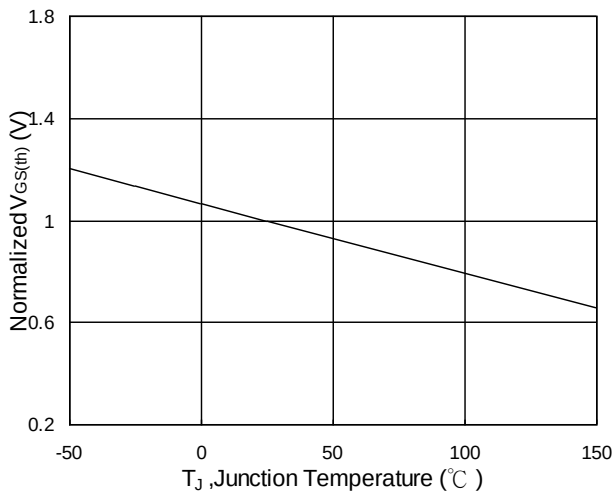


Fig.3 Normalized $V_{GS(th)}$ vs. T_j

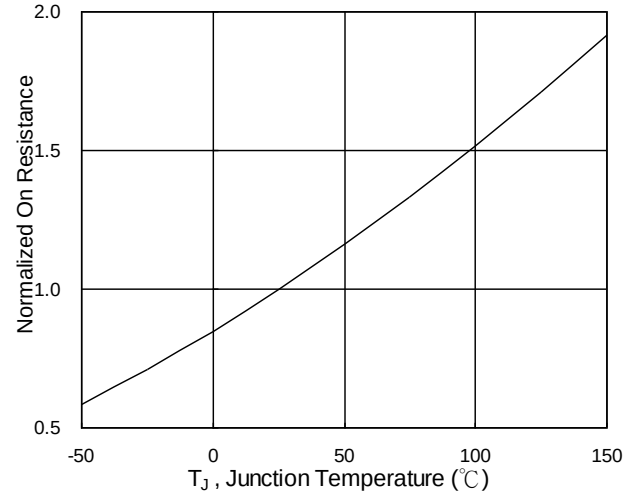


Fig.4 Normalized $R_{DS(on)}$ vs. T_j

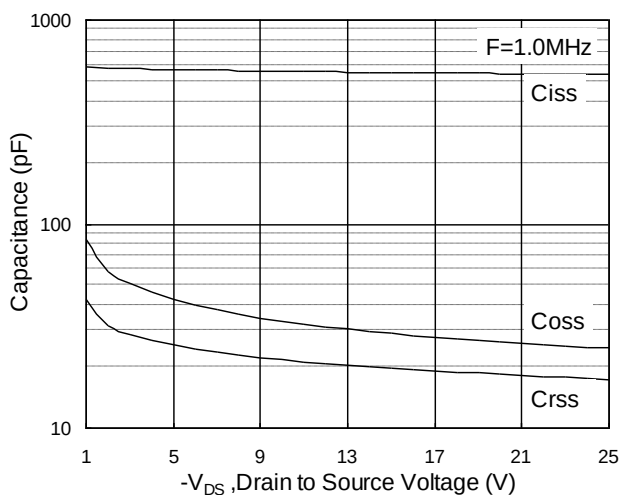


Fig.5 Capacitance

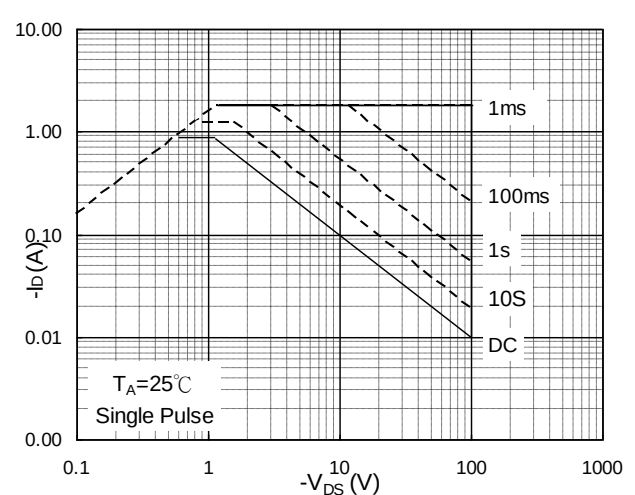


Fig.6 Safe Operating Area

P-Ch 100V Fast Switching MOSFETs

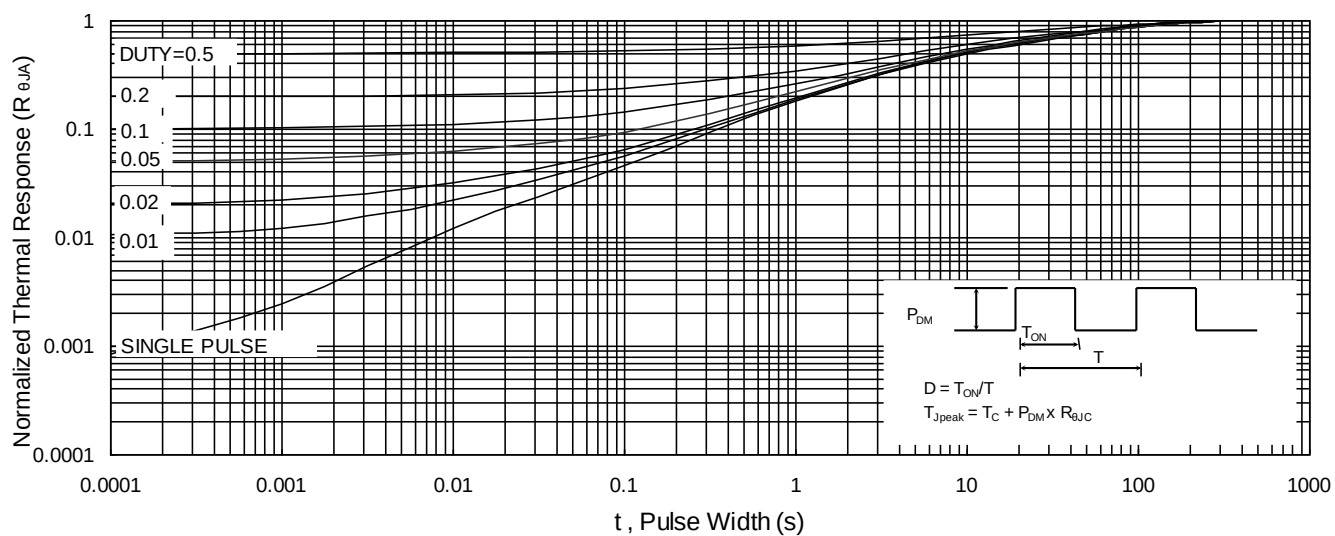


Fig.7 Normalized Maximum Transient Thermal Impedance

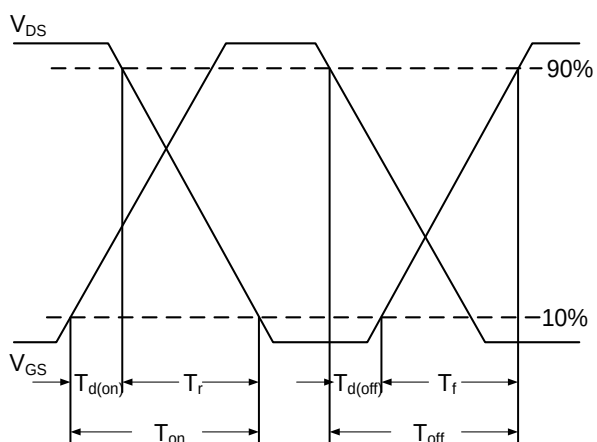


Fig.8 Switching Time Waveform

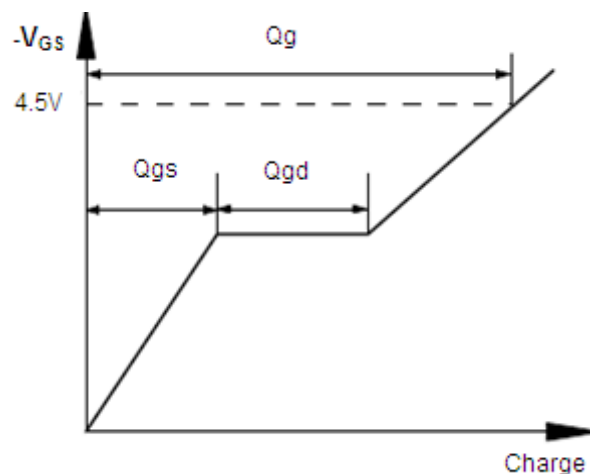
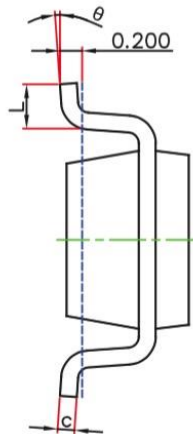
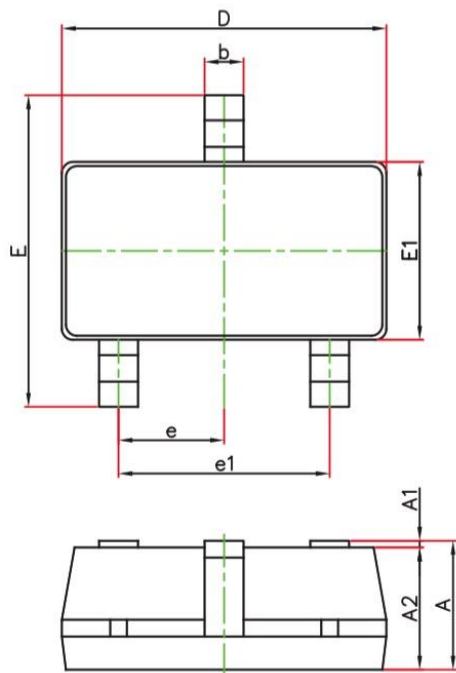


Fig.9 Gate Charge Waveform

Ordering Information

Part Number	Package code	Packaging
HSS2P10	SOT-23L	3000/Tape&Reel



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°