

1. Description

The HS1010E is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

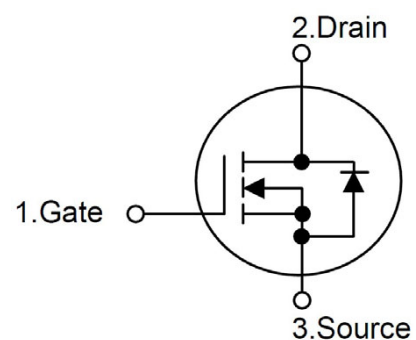
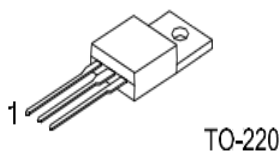
2. Feature

- $R_{DS(on)} \leq 12m \Omega @ V_{GS}=10V$
- Super high density cell design for extremely low $R_{DS(on)}$
- Exceptional on-resistance and maximum DC current capability

V_{DS}	60	V
$R_{DS(on)}$	12	m Ω
I_D	85	A

3. Pin configuration

Order Number	Package
HS1010E	TO-220



4. Absolute maximum ratings (T_c=25°C Unless Otherwise Noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V _{DSS}	60	V
Gate-Source Voltage		V _{GSS}	±20	V
Continuous Drain Current*	T _c =25°C	I _D	85	A
	T _c =70°C		71	
Pulsed Drain Current ^a		I _{DM}	340	A
Power Dissipation	T _c =25°C	P _D	200	W
	T _c =70°C		140	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 175	°C

5. Thermal characteristics

Parameter	Symbol	Ratings	Units
Thermal resistance, case-to-sink typ.	R _{thCS}	0.5	°C/W
Thermal resistance junction-case	R _{thJC}	0.75	°C/W

6. Electrical characteristics (TA=25°C Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μA	60			V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	2.0		4.0	V
I _{GSS}	Gate-Body Leakage	V _{DS} =0V, V _{GS} =±20V			±100	nA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V			1	μA
R _{DS(ON)}	Drain-Source On-Resistance*	V _{GS} =10V, I _D =40A		9.5	12	mΩ
V _{SD}	Diode Forward Voltage *	I _S =40A, V _{GS} =0V		0.8	1.2	V
DYNAMIC						
Q _g	Total Gate Charge	V _{DD} =48V, V _{GS} =10V, I _D =50A		92		nC
Q _g	Total Gate Charge	V _{DD} =48V, V _{GS} =4.5V, I _D =50A		22		
Q _{gs}	Gate-Source Charge			22		
Q _{gd}	Gate-Drain Charge			30		
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz		0.8		Ω
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz		4150		pF
C _{oss}	Output Capacitance			487		
C _{rss}	Reverse Transfer Capacitance			155		
t _{d(on)}	Turn-On Delay Time	V _{GS} =10V, R _L =30Ω V _{DD} =30V, R _G =3.6Ω		35		ns
t _r	Turn-On Rise Time			16		
t _{d(off)}	Turn-Off Delay Time			91		
t _f	Turn-Off Fall Time			36		

Notes :a. pulse test:pulse width ≤ 300 us,duty cycle ≤ 2% ,Guaranteed by design,not subject to production testing.

b. HOMSEMI reserves the right to improve product design,functions and reliability without notice.