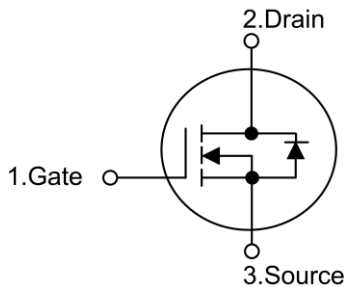


Description

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.

Pin configuration

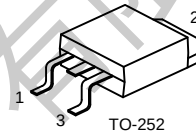
Order Number	Package
HS1010E	TO-252



Features

VDS	70V
RDS(on)Max.	7mΩ
ID	75A

- Super high density cell design for extremely low RDS(ON)
- Exceptional on-resistance and maximum DC current capability



Maximum Ratings (Tc = 25°C unless otherwise noted*)

Parameter		Symbol	Ratings	Units
Drain-Source Voltage		VDSS	70	V
Gate-Source Voltage		VGSS	±20	V
Continuous Drain Current(Notes 1)	Tc=25°C	ID	75	A
	Tc=100°C		53	A
Pulsed Drain Current		IDM	250	A
Power Dissipation	Tc=25°C	PD	110	W
	Derate above 25°C		0.88	
Operating Junction and Storage Temperature Range		TJ,Tstg	-55~+175	°C

Notes:

1. Calculated continuous current based on maximum allowable junction temperature.

Thermal Characteristics

Parameter	Symbol	Ratings	Units
Thermal resistance, case to sink typ.	RthCS	0.5	°C/W
Thermal resistance junction to case.	RthJC	0.6	°C/W
Thermal resistance junction to ambient.	RthJA	110	°C/W

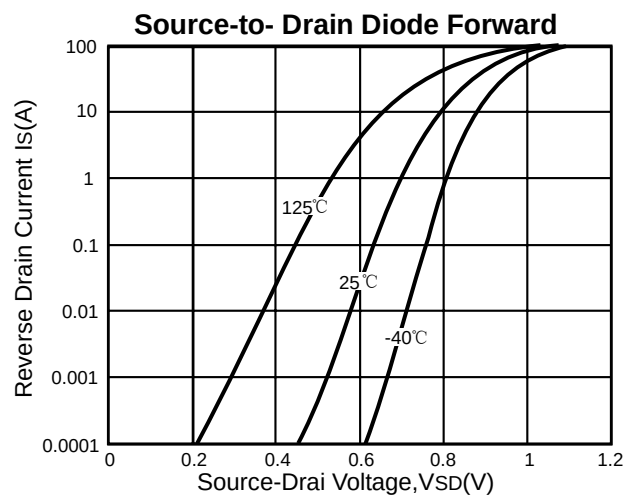
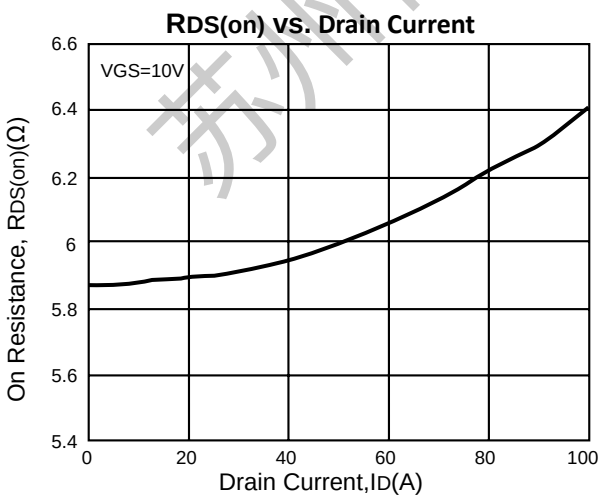
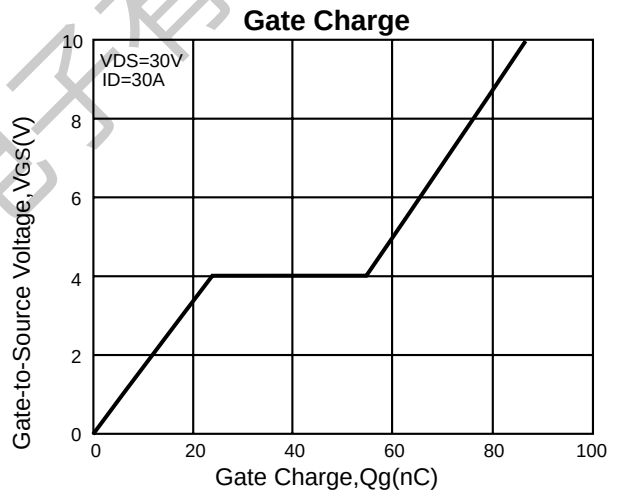
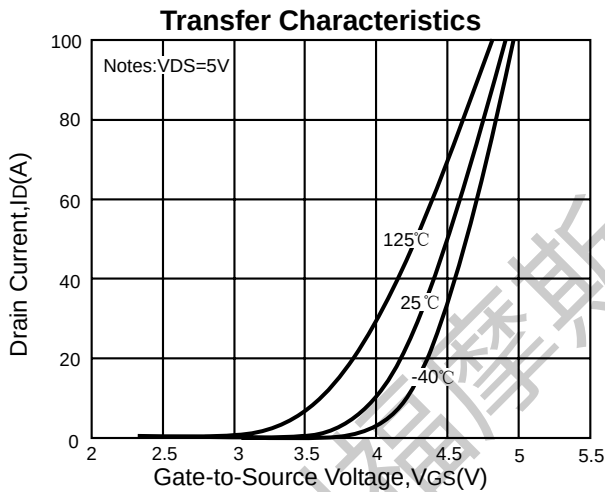
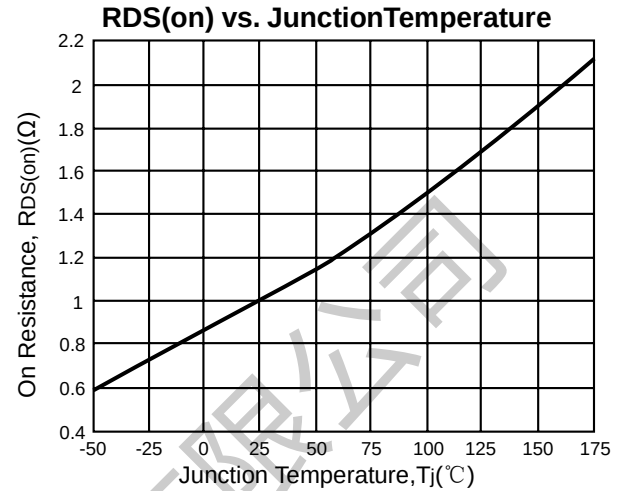
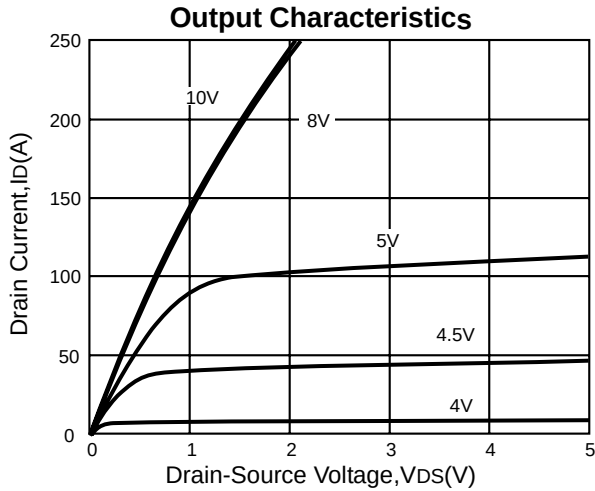
Electrical characteristics (TA =25°C Unless Otherwise Specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
STATIC						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	70	—	—	V
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	2	—	4	V
IGSS	Gate-Body Leakage	VDS=0V, VGS=±20V	—	—	±100	nA
IDSS	Zero Gate Voltage Drain Current	VDS=70V, VGS=0V	—	—	1	μA
RDS(ON)	Drain-Source On-Resistance	VGS=10V, ID=40A	—	—	7	mΩ
VSD	Diode Forward Voltage	IS=35A, VGS=0V	—	—	1.2	V
DYNAMIC						
Qg	Total Gate Charge	VDD=48V, VGS=4.5V, ID=50A	—	85	—	nC
Qgs	Gate-Source Charge		—	22	—	
Qgd	Gate-Drain Charge		—	31	—	
Rg	Gate Resistance	VDS=0V, VGS=1V, f=1MHz		0.63		Ω
Ciss	Input Capacitance	VDS=15V, VGS=0V, f=1MHz	—	4750	—	pF
Coss	Output Capacitance		—	630	—	
Crss	Reverse Transfer Capacitance		—	410	—	
td(on)	Turn-On Delay Time	VGS =10V, RL=30Ω VDD=30V, RG=3.6Ω	—	36	—	ns
tr	Turn-On Rise Time		—	53	—	
td(off)	Turn-Off Delay Time		—	85	—	
tf	Turn-Off Fall Time		—	32	—	

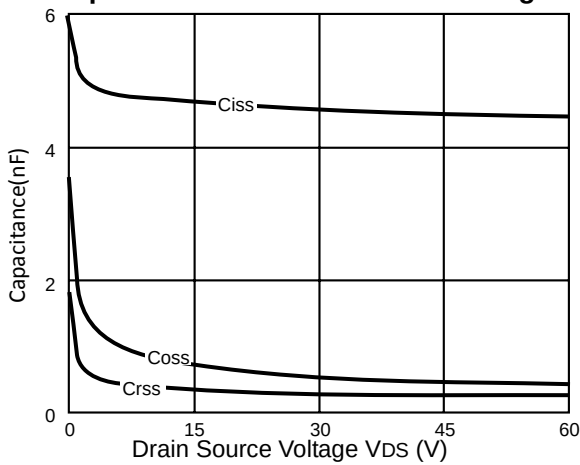
Notes :a. Pulse test:pulse width≤300us,duty cycle≤2% .

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

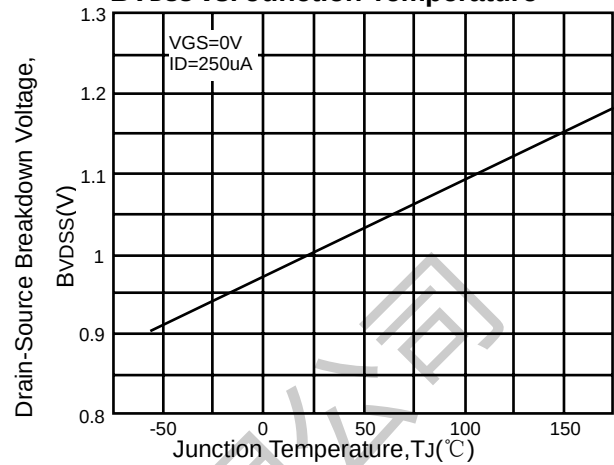
Typical Characteristics (T_J = 25°C Noted)



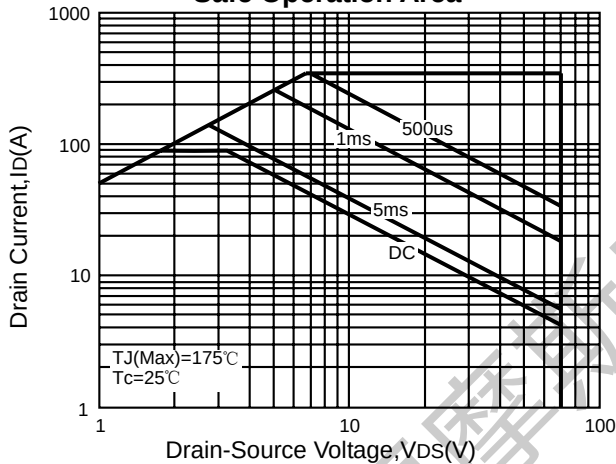
Capacitance vs. Drain Source Voltage



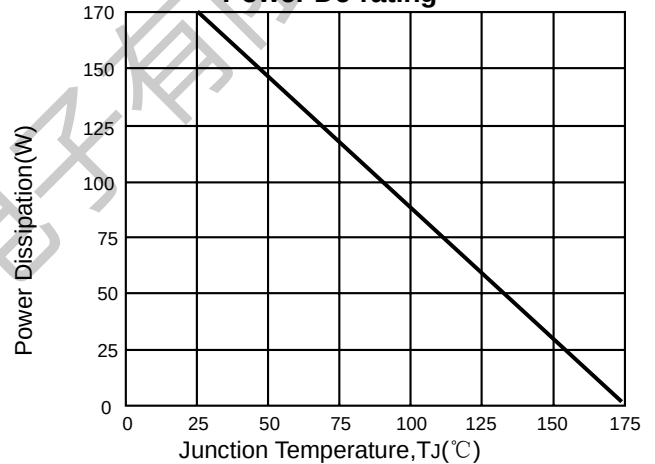
BV_{DSS} vs. Junction Temperature



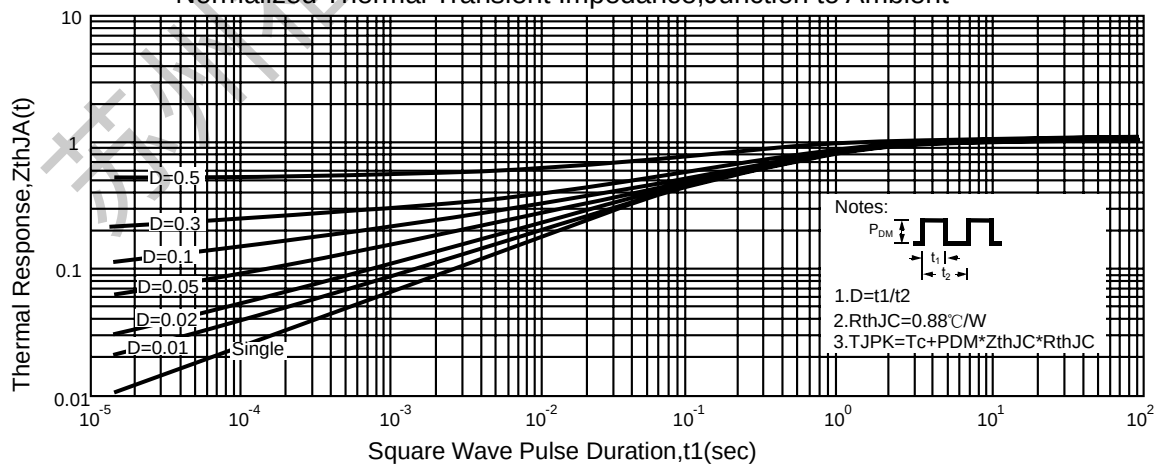
Safe Operation Area



Power De-rating

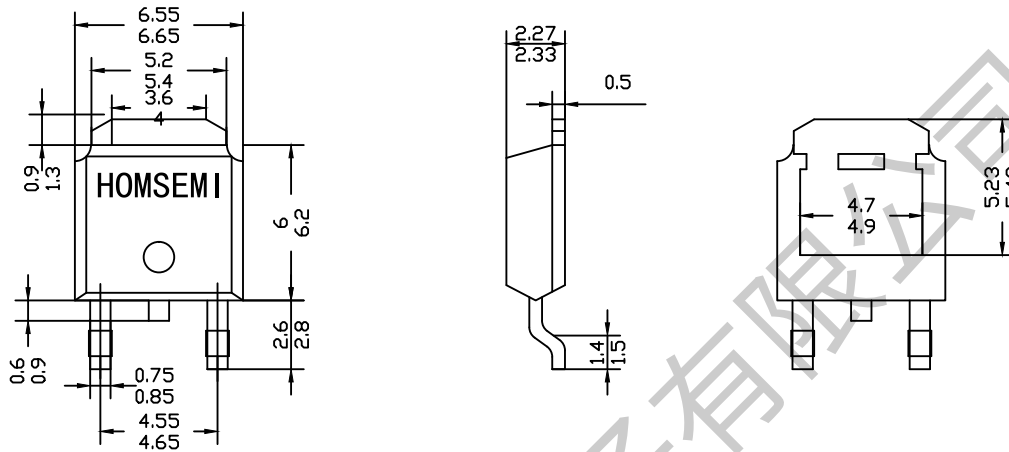


Normalized Thermal Transient Impedance, Junction to Ambient



Mechanical Dimensions

Unit: mm



Making

