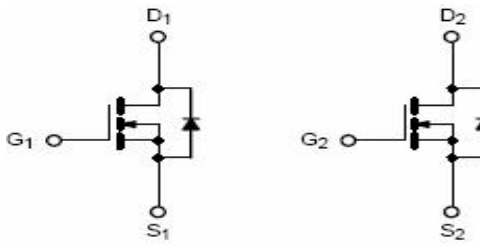
Dual N-channel Enhancement Mode

3622DE DATASHEET

DESCRIPTION

The 3622DE uses advanced trench technology to provide excellent RDS(ON) and low gate charge. This device is suitable for use as a load switch or in PWM applications.



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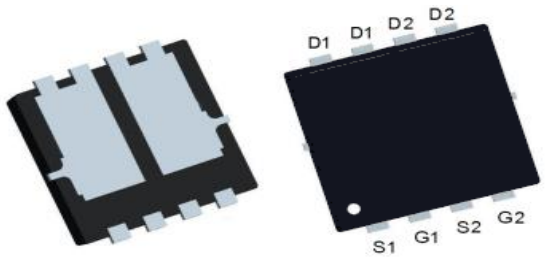


GENERAL FEATURES

- RDS(ON) <10mΩ @ VGS=10V
  RDS(ON) <13mΩ @ VGS=4.5V
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Application

- PWM applications
- Load switch
- Power management

■ **Absolute Maximum Ratings** (T_A=25℃unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	30	V
Gate-source Voltage		V_{GS}	±20	V
Drain Current	T_C=25℃	I_D	35	A
	T_C=100℃		22	
Pulsed Drain Current [A]		I_{DM}	140	A
Total Power Dissipation	T_C=25℃	P_D	20	W
	T_C=100℃		15	W
Single Pulse Avalanche Energy [B]		E_{AS}	16	mJ
Thermal Resistance Junction-to-Case [C]		$R_{\theta JC}$	45	℃/W
Junction and Storage Temperature Range		T_J,T_{STG}	-55～+155	℃

ELECTRICAL CHARACTERISTICS (T_A=25℃unless otherwise noted)

Parameter	Symbol	Conditions		Min	Typ	Max	Units
Static Parameter							
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=250μA		30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V	T_J=25℃			1	μA
			T_J=55℃			5	
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±20V, V_{DS}=0V				±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250μA		1.0	1.5	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 10V, I_D=15A			8.0	10	mΩ
		V_{GS}= 4.5V, I_D=15A			10	13	
Diode Forward Voltage	V_{SD}	I_S=15A,V_{GS}=0V			0.85	1.2	V
Maximum Body-Diode Continuous Current	I_S					30	A
Dynamic Parameters							
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHZ			1020		pF
Output Capacitance	C_{oss}				225		
Reverse Transfer Capacitance	C_{rss}				126		
Switching Parameters							
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=15V,I_D=30A			28		nC
Gate-Source Charge	Q_{gs}				7		
Gate-Drain Charge	Q_{gd}				5		
Reverse Recovery Chrage	Q_{rr}	I_F=15A, di/dt=100A/us			25		
Reverse Recovery Time	t_{rr}				26		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=10V,V_{DD}=20V, I_D=2A,R_L=1Ω R_{GEN}=3Ω			8		
Turn-on Rise Time	tt_{rr}				15		
Turn-off Delay Time	$t_{D(off)}$				27		
Turn-off fall Time	tt_{ff}				7		

A. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.

B. T_j=25℃, V_{DD}=20V, V_G=10V, L=0.5mH, R_g=25Ω

C. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design, while $R_{\theta JA}$ is determined by the board design. The maximum rating presentedhere is based on mountin on a 1 in 2 pad of 2oz copper.

■ Typical Performance Characteristics

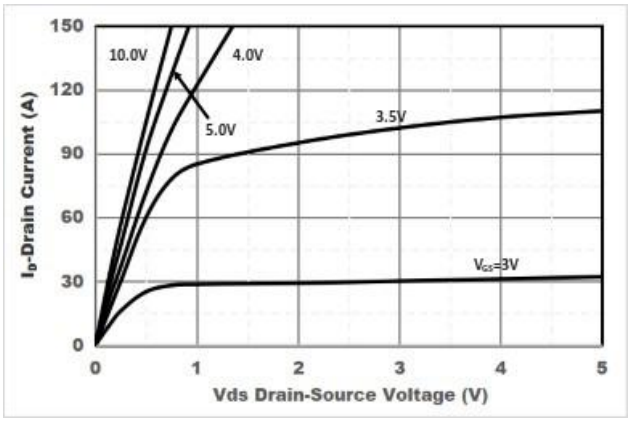


Figure1. Output Characteristics

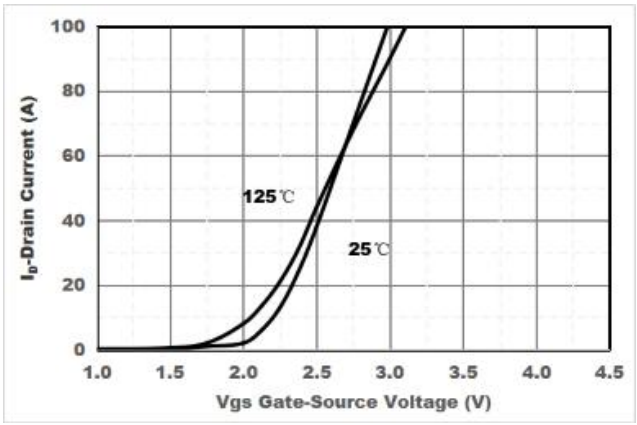


Figure2. Transfer Characteristics

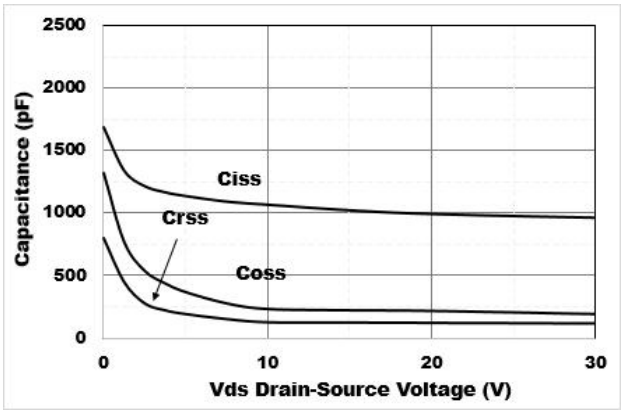


Figure3. Capacitance Characteristics

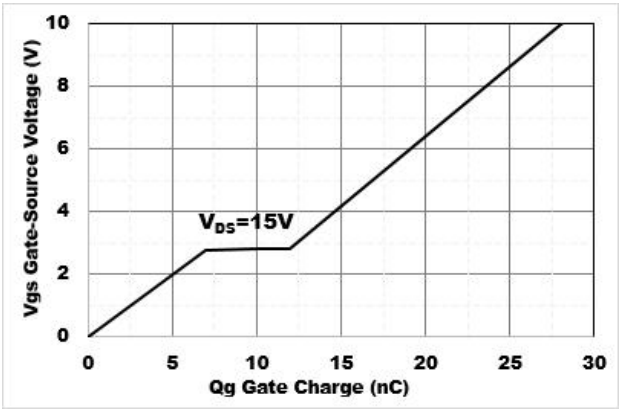


Figure4. Gate Charge

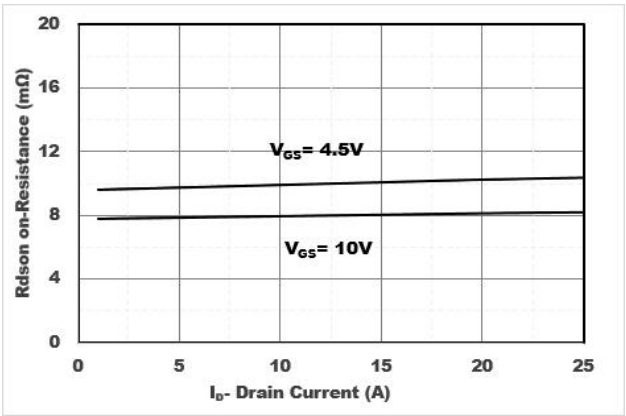


Figure5. Drain-Source on Resistance

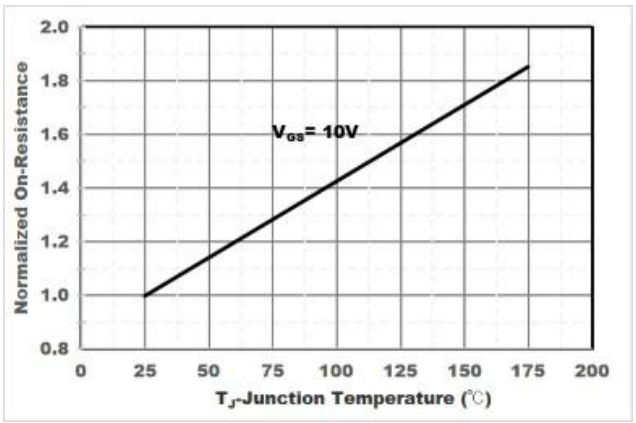


Figure6. Drain-Source on Resistance

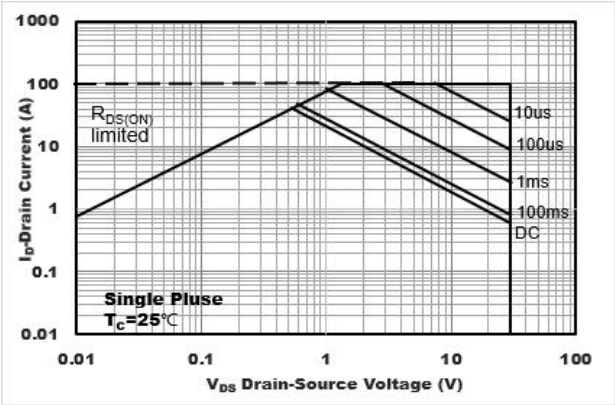


Figure7. Safe Operation Area

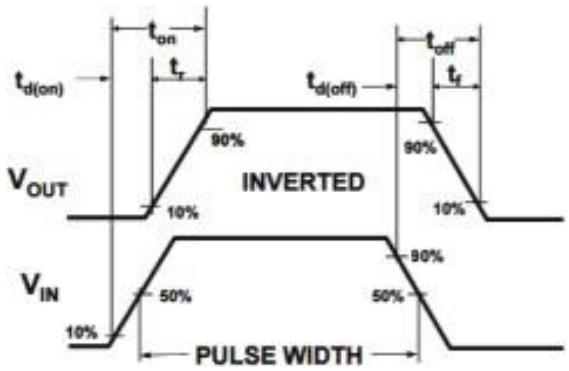
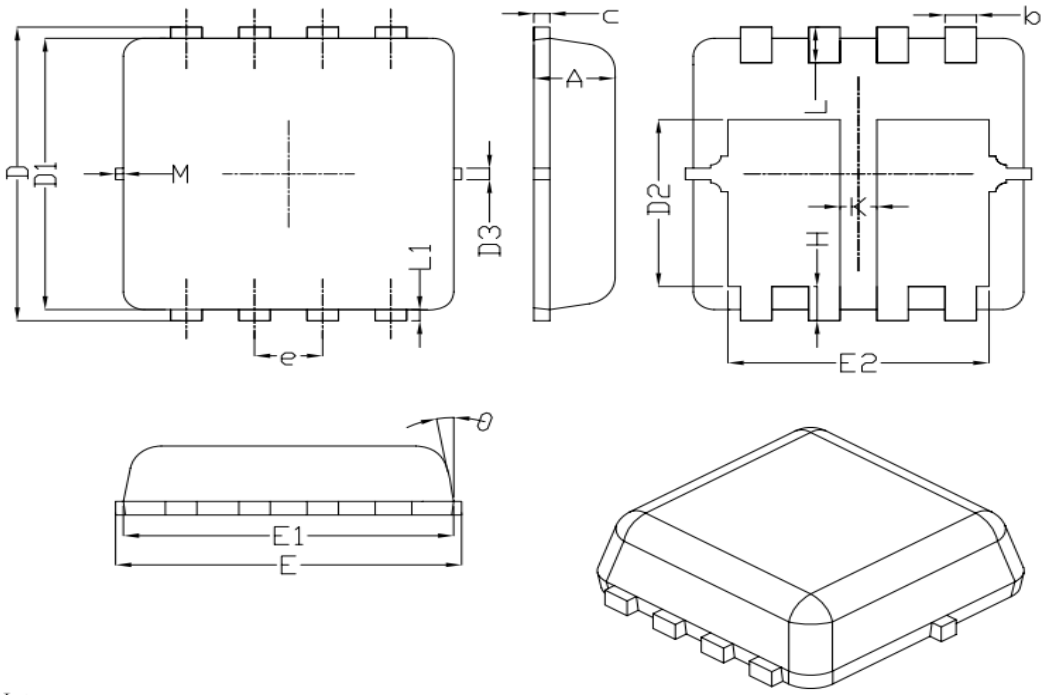


Figure8. Switching wave

Package Information



Symbol	Dimensions (unit: mm)		
	Min	Typ	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	--
K	0.30	--	--
θ	--	10°	12°
M	*	*	0.15
* Not Specified			