Dual N-Channel 30V(D-S) MOSFET

Product summary		
V_{DS}	30	V
$R_{DS(ON)}$(at V_{GS}=4.5V) Typ.	26	mΩ
$R_{DS(ON)}$(at V_{GS}=2.5V) Typ.	32	mΩ
I_D(Tc=25℃)	5	A

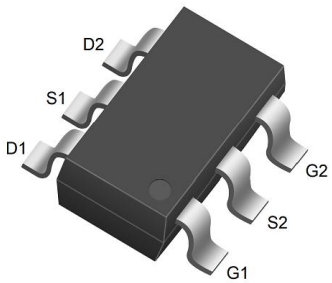
Features

- Fast switching speed
- Low gate charge
- RoHS and Halogen-Free compliant

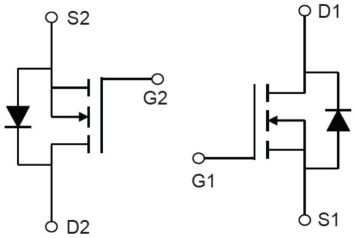
Applications

- Load switch
- Power management

Pin Configuration



SOT-23-6L



Packing Information

Device	Package	Reel Size	Quantity(Min. Package)
ECDE05N03D	SOT-23-6L	7″	3000pcs

Absolute Maximum Ratings (at TA=25℃ Unless Otherwise Noted)

Symbol	Parameter		Rating	Units
V_{DS}	Drain-Source Voltage		30	V
V_{GS}	Gate-Source Voltage		±12	V
I_D	Continuous Drain Current [A]	T_C=25℃	5.0	A
		T_C=70℃	4.1	A
I_{DM}	Pulse Drain Current Tested [B]		26	A
P_D	Power Dissipation [A]		1.3	W
T_J,T_{STG}	Junciton and Storage Temperature Range		-55 to +150	℃

Thermal Characteristics

Symbol	Parameter	Typical	Units
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient [A]	96	℃/W

Electrical Characteristics (at T_J =25℃ Unless Otherwise Noted)

Symbol	Parameter	Condition	Min.	Typ.	Max.	Units
Static Parameters						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	30	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V,V_{GS}=0V	--	--	1	uA
I_{GSS}	Gate-Body Leakage Current	V_{DS}=0V,V_{GS}=±12V	--	--	±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	0.5	0.9	1.5	V
$R_{DS(ON)}$	Drain-Source On-State Resistance [B]	V_{GS}=10V,I_D=5A	--	21	28	mΩ
		V_{GS}=4.5V,I_D=4A	--	26	33	mΩ
		V_{GS}=2.5V,I_D=3A	--	32	44	mΩ
V_{SD}	Forward Voltage	I_S=5A,V_{GS}=0V	--	--	1.2	V
I_S	Maximum Body-Diode Continuous Current		--	--	5.6	A
Dynamic Parameters [C]						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=15V f=1MHZ	--	524	--	pF
C_{oss}	Output Capacitance		--	136	--	pF
C_{rss}	Reverse Transfer Capacitance		--	41	--	pF
Q_g	Total Gate Charge	V_{DS}=15V,I_D=5A V_{GS}=4.5V	--	4.7	--	nC
Q_{gs}	Gate-Source Charge		--	1.2	--	nC
Q_{gd}	Gate-Drain Charge		--	1.6	--	nC
$t_{D(on)}$	Turn-on Delay Time	V_{DD}=15V I_D=1A,R_{GEN}=2.8Ω, V_{GS}=4.5V	--	12	--	ns
t_r	Turn-on Rise Time		--	54	--	ns
$t_{D(off)}$	Turn-off Delay Time		--	18	--	ns
t_f	Turn-off Fall Time		--	10	--	ns

A. The data tested by surface mounted on a 1 inch x 1 inch FR-4 board with 2OZ copper.

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

C. Guaranteed by design, not subject to production testing.

Typical Characteristics

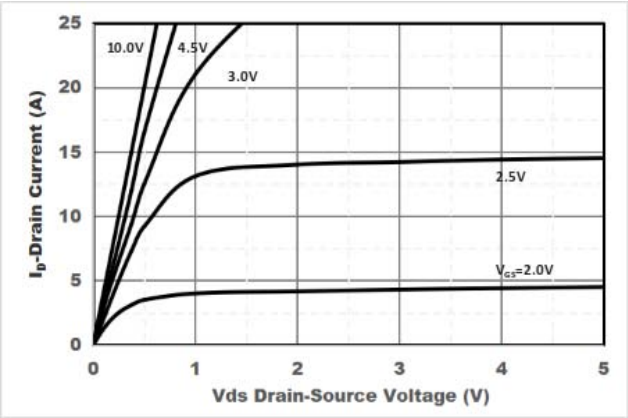


Figure1. Output Characteristics

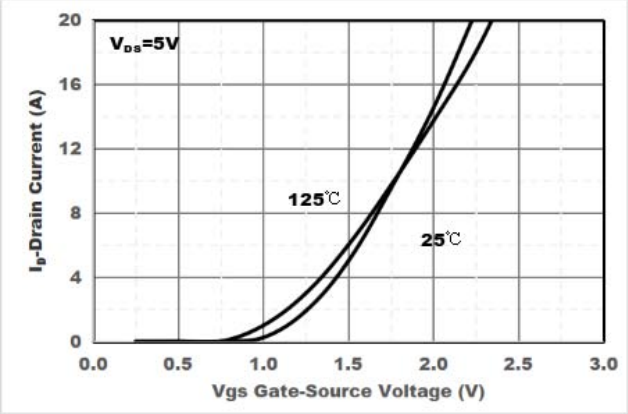


Figure2. Transfer Characteristics

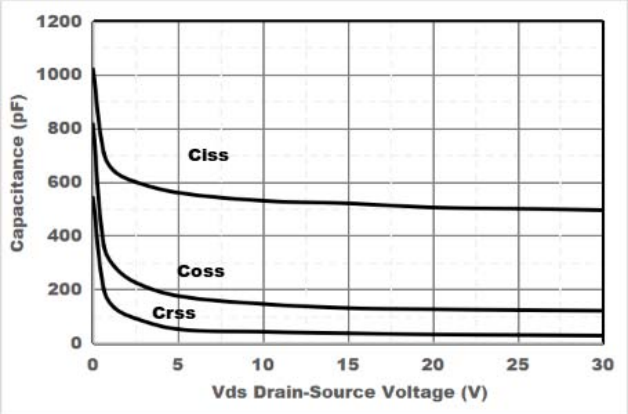


Figure3. Capacitance Characteristics

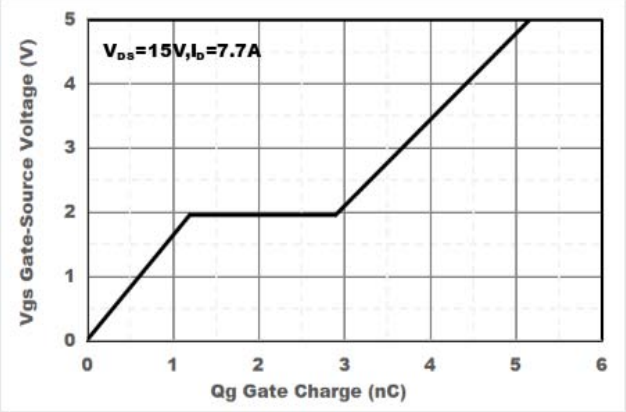


Figure4. Gate Charge

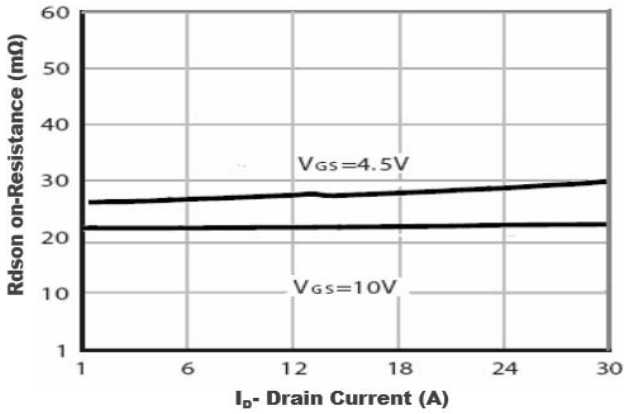


Figure5. Drain-Source on Resistance

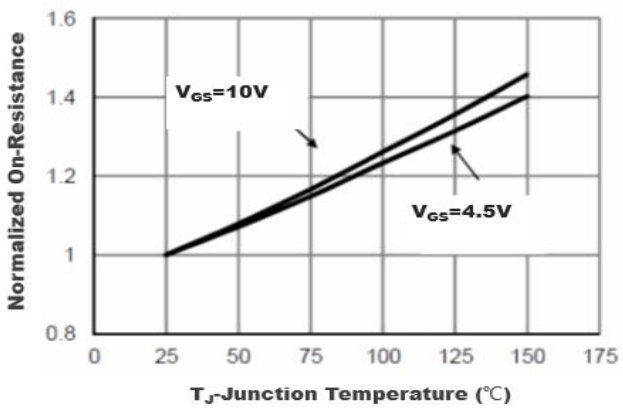


Figure6. Drain-Source on Resistance

Typical Characteristics

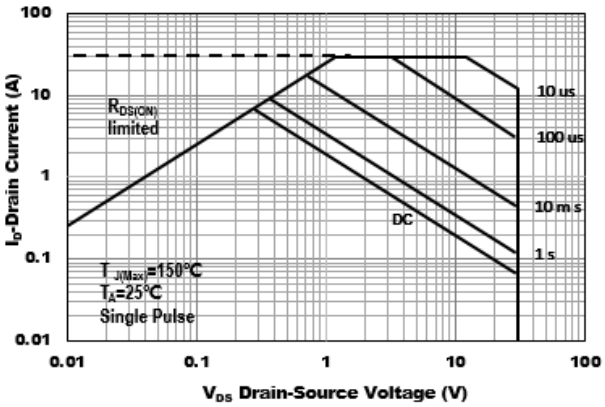


Figure7. Safe Operation Area

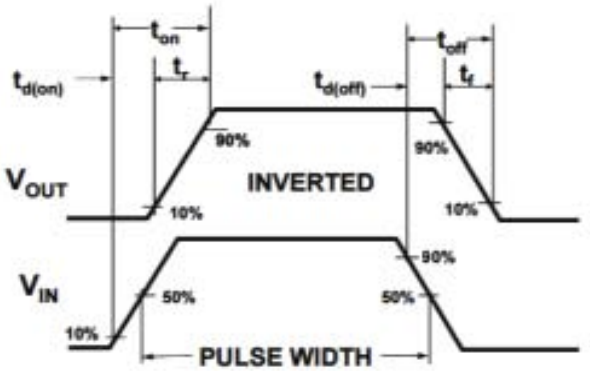
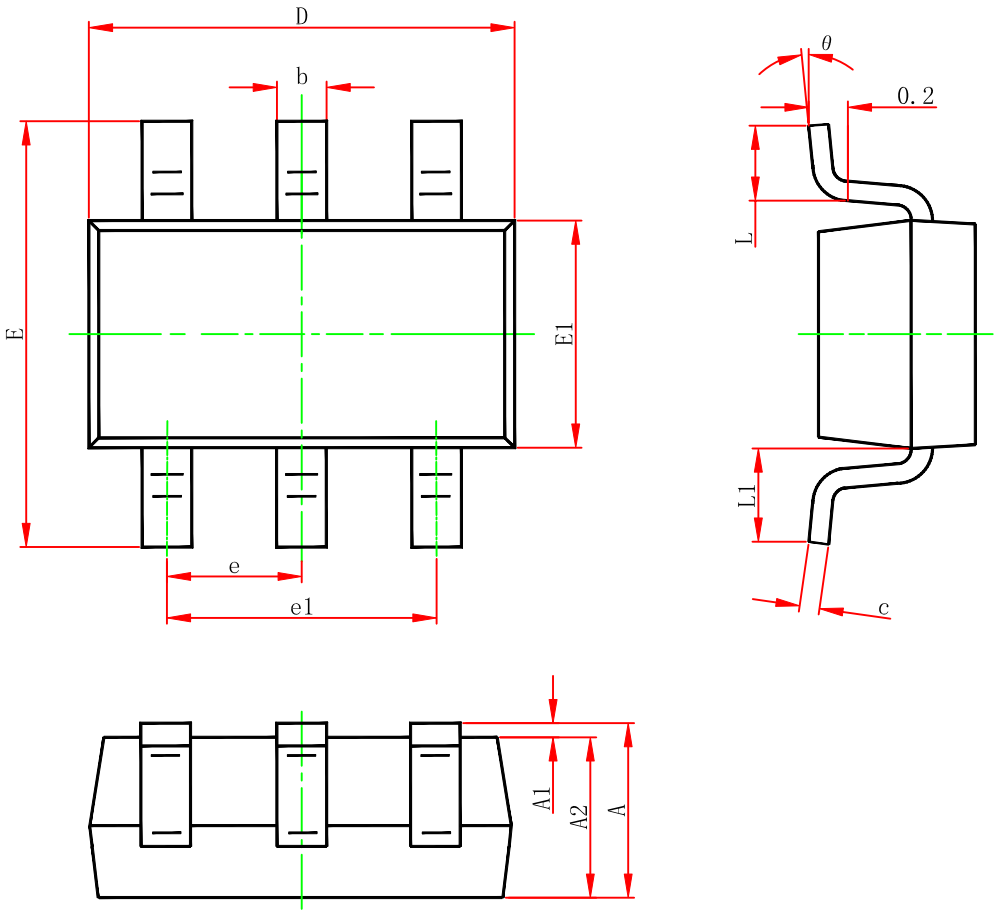


Figure8. Switching wave

SOT-23-6L Package Information



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
L1	0.600REF.		0.024REF.	
θ	0°	8°	0°	8°