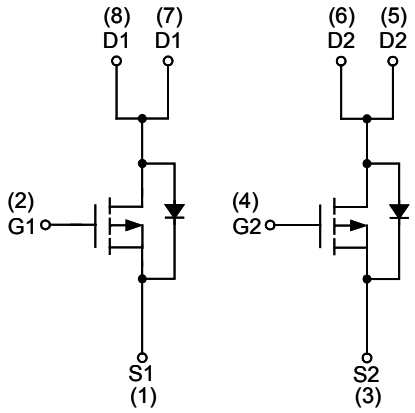
Dual P-channel Enhancement Mode

3429DE DATASHEET

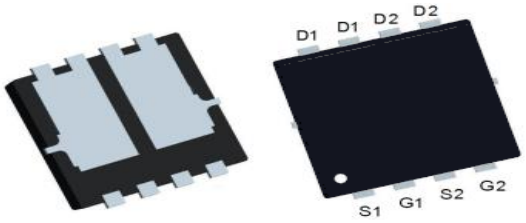
DESCRIPTION

The 3429DE 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.



P-Channel MOSFET

DFN3333



GENERAL FEATURES

- V_{DS} -20V
- I_D -30A
- $R_{DS(ON)}$(at V_{GS}=-4.5V) ＜19 mohm
- $R_{DS(ON)}$(at V_{GS}=-2.5V) ＜26 mohm
- $R_{DS(ON)}$(at V_{GS}=-1.8V) ＜45 mohm
- Trench Power LV MOSFET technology
- High density cell design for Low $R_{DS(ON)}$
- High Speed switching

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}	-20	V
Gate-source Voltage		V_{GS}	±10	V
Drain Current	T_C=25℃ @ Steady State	I_D	-30	A
	T_C=100℃ @ Steady State		-19	
Pulsed Drain Current [A]		I_{DM}	-40	A
Total Power Dissipation	T_C=25℃ @ Steady State	P_D	32	W
	T_C=100℃ @ Steady State		12.8	W
Single Pulse Avalanche Energy [B]		E_{AS}	31	mJ
Thermal Resistance Junction-to-Case [C]		$R_{\theta JC}$	3.9	℃/ 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	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V,V_{GS}=0V,T_C=25℃			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±10V, V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=-250μA	-0.4	-0.62	-1.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= -4.5V, I_D=-15A		15.5	19	mΩ
		V_{GS}= -2.5V, I_D=-8A		21	26	
		V_{GS}= -1.8V, I_D=-6A		30	45	
Diode Forward Voltage	V_{SD}	I_S=-30A,V_{GS}=0V		-0.8	-1.2	V
Maximum Body-Diode Continuous Current	I_S				-30	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=-10V,V_{GS}=0V,f=1MHZ		2050		pF
Output Capacitance	C_{oss}			411		
Reverse Transfer Capacitance	C_{rss}			362		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=-10V,V_{DS}=-15V,I_D=-15A		30		nC
Gate Source Charge	Q_{gs}			5.3		
Gate Drain Charge	Q_{gd}			7.6		
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=-10V,V_{DS}=-15V, I_D=-15A, R_{GEN}=2.5Ω		14		ns
Turn-on Rise Time	t_r			20		
Turn-off Delay Time	$t_{D(off)}$			95		
Turn-off Fall Time	t_f			65		

A. Repetitive Rating: Pulse width limited by maximum junction temperature.
B. T_j=25℃, V_{DD}=-15V, V_G=-10V, L=0.1mH, R_g=25Ω
C. Surface Mounted on FR4 Board, t ≤ 10 sec.

■ Typical Performance Characteristics

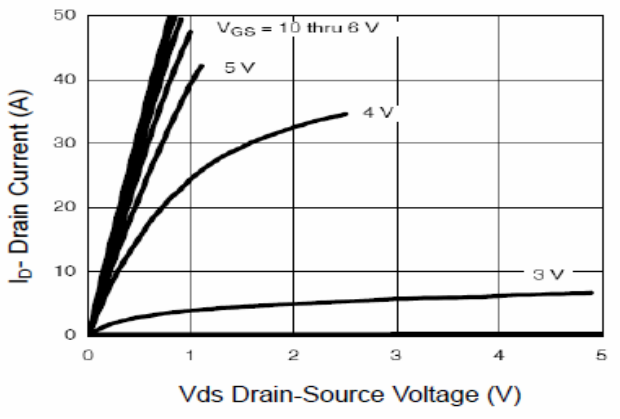


Figure1. Output Characteristics

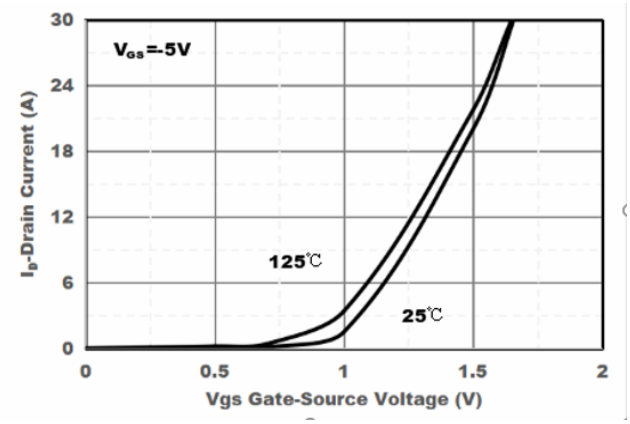


Figure2. Transfer Characteristics

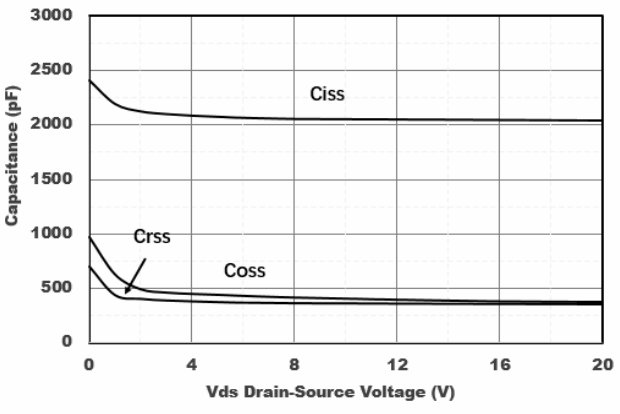


Figure3. Capacitance Characteristics

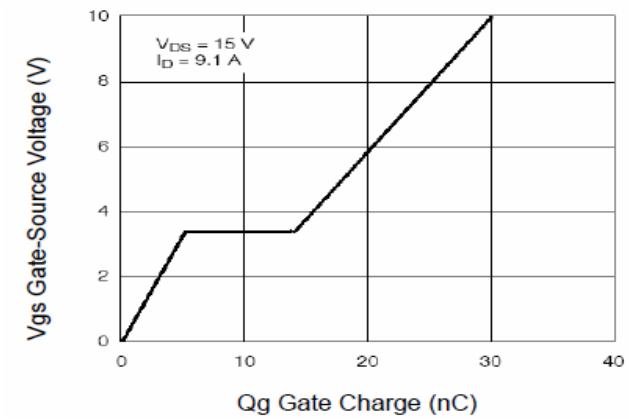


Figure4. Gate Charge

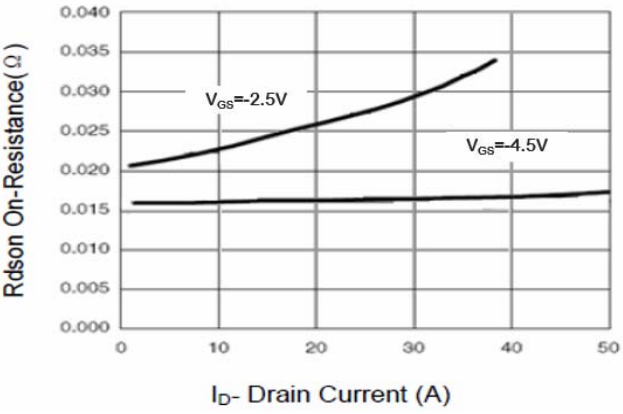


Figure5. Drain-Source on Resistance

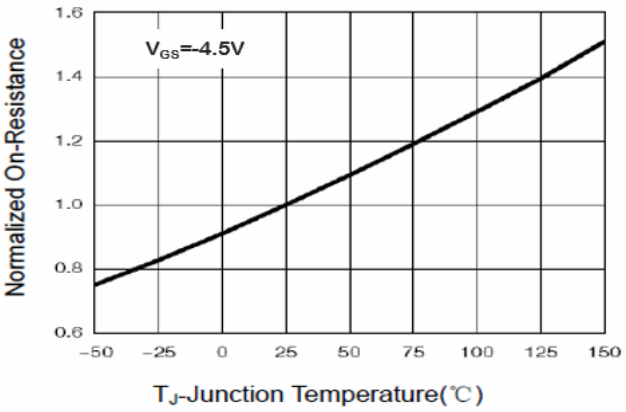
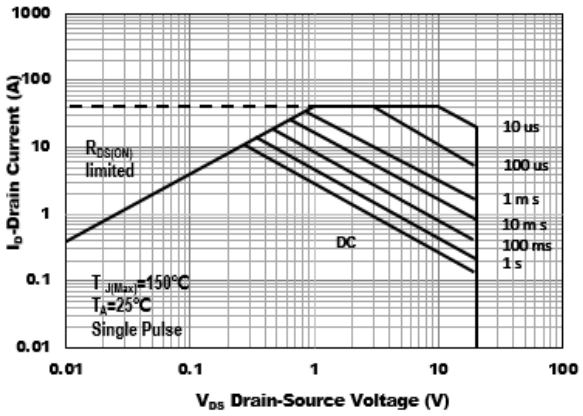


Figure6. Drain-Source on Resistance



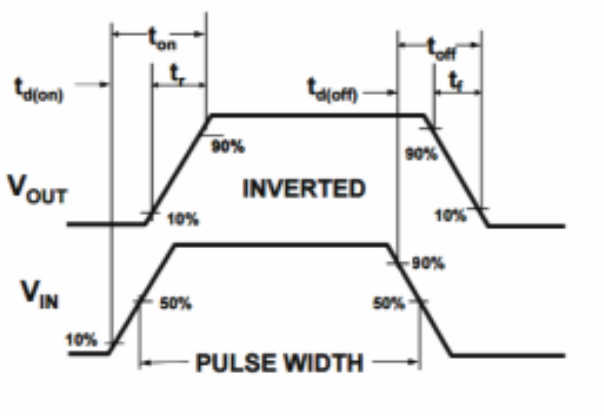
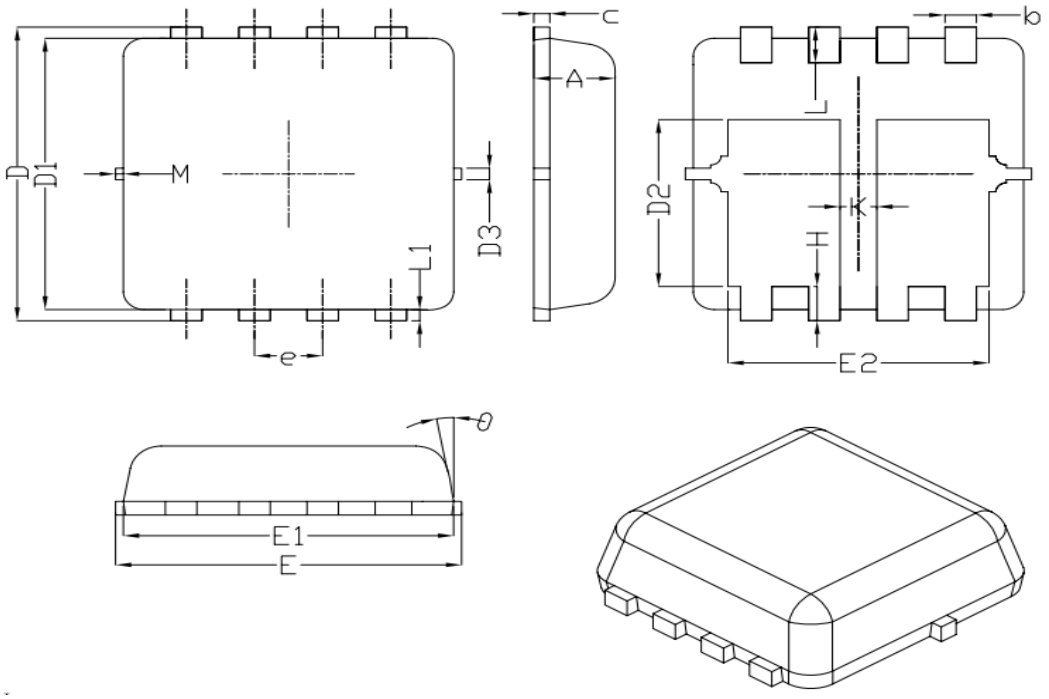


Figure8. Switching wave

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			