KS3428UA3T

Dual Asymmetric N-Channel Advanced Power MOSFET

Features

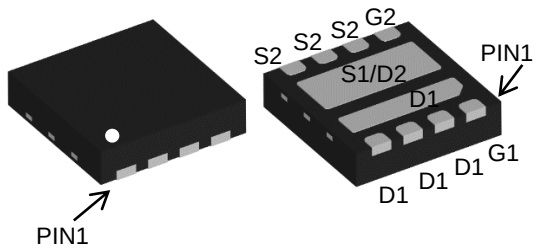
- Q1-Channel
30V/26A,
$R_{DS\ (ON)}$ =8mΩ(Typ.) @ V_{GS}=10V
$R_{DS\ (ON)}$ =12mΩ(Typ.) @ V_{GS}=4.5V
- Q2-Channel
30V/32A,
$R_{DS\ (ON)}$ =6mΩ (Typ.) @ V_{GS}=10V
$R_{DS\ (ON)}$ =9mΩ (Typ.) @ V_{GS}=4.5V
- Excellent Q_G x $R_{DS(on)}$ product(FOM)
- SGT Technology

Applications

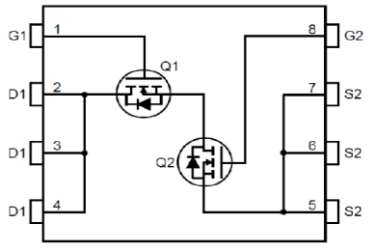
- DC/DC Converter

RoHS Pb HF Halogen-Free

Pin Description



SDFN3030 DP2



Dual Asymmetric N-Channel MOSFET

Absolute Maximum Ratings

Symbol	Parameter		Q1	Q2	Unit
Common Ratings (T_A=25°C Unless Otherwise Noted)					
V_{DSS}	Drain-Source Voltage		30	30	V
V_{GSS}	Gate-Source Voltage		±20	±20	
T_J	Maximum Junction Temperature		150	150	°C
T_{STG}	Storage Temperature Range		-55 to 150	-55 to 150	°C
I_S	Diode Continuous Forward Current	T_C=25°C	26	32	A
Mounted on Large Heat Sink					
I_{DP} ①	300μs Pulse Drain Current Tested	T_C=25°C	104	128	A
I_D ②	Continuous Drain Current@T_C(V_{GS}=±10V)	T_C=25°C	26	32	A
		T_C=100°C	16	20	
	Continuous Drain Current@T_A(V_{GS}=±10V) ③	T_A=25°C	11	12	
		T_A=70°C	9	10	
P_D	Maximum Power Dissipation@T_C	T_C=25°C	16	19	W
		T_C=100°C	6	8	
	Maximum Power Dissipation@T_A ③	T_A=25°C	2.8	2.8	
		T_A=70°C	1.8	1.8	
$R_{\theta JC}$	Thermal Resistance-Junction to Case		8	6.5	°C/W
$R_{\theta JA}$ ③	Thermal Resistance-Junction to Ambient		45	45	°C/W
Drain-Source Avalanche Ratings					
E_{AS} ④	Avalanche Energy, Single Pulsed		9	16	mJ

Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

Symbol	Parameter	Test Condition		KS3428UA3T			Unit
				Min.	Typ.	Max.	
Static Characteristics							
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=250μA	Q1	30			V
		V_{GS}=0V, I_{DS}=250μA	Q2	30			
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V	Q1			1	μA
		T_J=125°C	Q1			30	
		V_{DS}=30V, V_{GS}=0V	Q2			1	
		T_J=125°C	Q2			30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=250μA	Q1	1.2	1.7	2.2	V
		V_{DS}=V_{GS}, I_{DS}=250μA	Q2	1.2	1.7	2.2	
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	Q1			±100	nA
		V_{GS}=±20V, V_{DS}=0V	Q2			±100	
$R_{DS(ON)}$ ⑤	Drain-Source On-state Resistance	V_{GS}=10V, I_{DS}=13A	Q1		8	10	mΩ
		V_{GS}=10V, I_{DS}=15A	Q2		6	8	
		V_{GS}=4.5V, I_{DS}=10A	Q1		12	16	
		V_{GS}=4.5V, I_{DS}=10A	Q2		9	12	
Diode Characteristics							
V_{SD} ⑤	Diode Forward Voltage	I_{SD}=13A, V_{GS}=0V	Q1		0.86	1.2	V
		I_{SD}=15A, V_{GS}=0V	Q2		0.88	1.2	
t_{rr}	Reverse Recovery Time	Q1-Channel I_{SD}=13A, dI_{SD}/dt=100A/μs	Q1		9		ns
			Q2		12		
Q_{rr}	Reverse Recovery Charge	Q2-Channel I_{SD}=15A, dI_{SD}/dt=100A/μs	Q1		14		nC
			Q2		17		
Dynamic Characteristics ⑥							
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz	Q`		1.1		Ω
			Q2		1.2		
C_{iss}	Input Capacitance	Q1-Channel V_{GS}=0V,V_{DS}=15V, Frequency=1.0MHz	Q1		560		pF
			Q2		690		
C_{oss}	Output Capacitance	Q2-Channel V_{GS}=0V,V_{DS}=15V, Frequency=1.0MHz	Q1		275		
			Q2		330		
C_{rss}	Reverse Transfer Capacitance		Q1		25		
			Q2		35		

Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

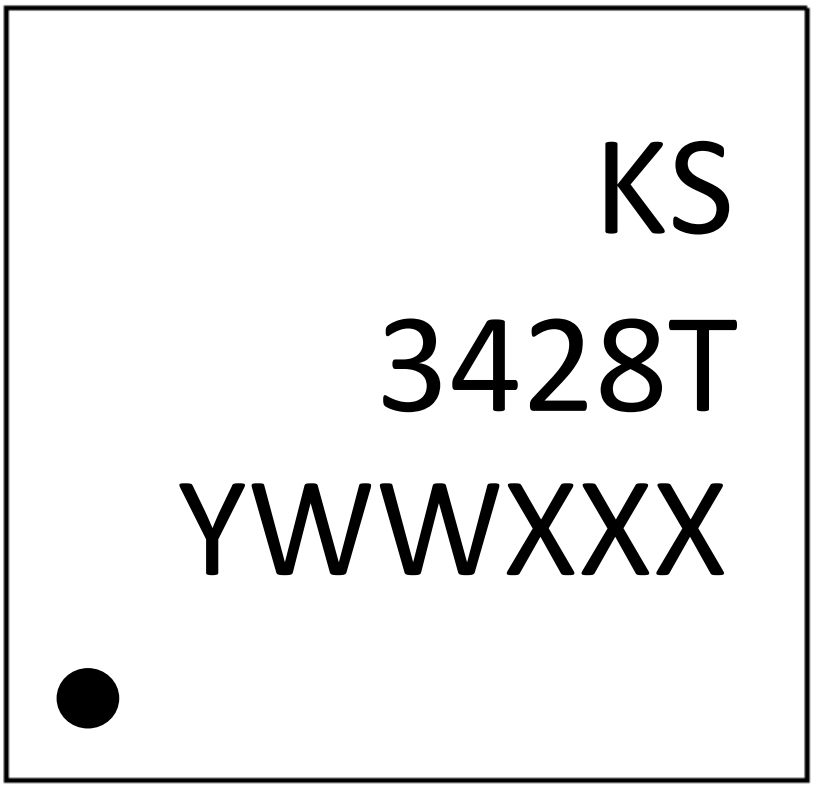
Symbol	Parameter	Test Condition		KS3428UA3T			Unit
				Min.	Typ.	Max.	
Dynamic Characteristics⑥							
$t_{d(ON)}$	Turn-on Delay Time	Q1-Channel V_{DD}=15V, I_{DS}=13A, V_{GEN}=10V, R_G=3Ω Q2-Channel V_{DD}=15V, I_{DS}=15A, V_{GEN}=10V, R_G=3Ω	Q1		5		ns
			Q2		6		
t_r	Turn-on Rise Time		Q1		4		
			Q2		8		
$t_{d(OFF)}$	Turn-off Delay Time		Q1		19		
			Q2		23		
t_f	Turn-off Fall Time		Q1		4		
			Q2		7		
Gate Charge Characteristics⑥							
Q_g	Total Gate Charge	Q1-Channel V_{DS}=15V, V_{GS}=10V, I_{DS}=13A Q2-Channel V_{DS}=15V, V_{GS}=10V, I_{DS}=15A	Q1		4.5		nC
			Q2		7.1		
Q_{gs}	Gate-Source Charge		Q1		2.4		
			Q2		2.2		
Q_{gd}	Gate-Drain Charge		Q1		1.6		
			Q2		3.1		

Notes:

①Pulse width limited by safe operating area.
②Calculated continuous current based on maximum allowable junction temperature.
③When mounted on 1 inch square copper board, t≤10sec. The value in any given application depends on the user's specific board design.
④Limited by $T_{Jmax.}$ Starting T_J = 25°C, Q1 Chanel: L = 0.5mH,R_G = 25Ω, I_{AS} = 6A, V_{GS} =10V, Q2-Chanel: L = 0.5mH, R_G = 25Ω, I_{AS} = 8A, V_{GS} =10V, Part not recommended for use above this value.
⑤Pulse test;Pulse width≤300μs, duty cycle≤2%.
⑥Guaranteed by design, not subject to production testing.

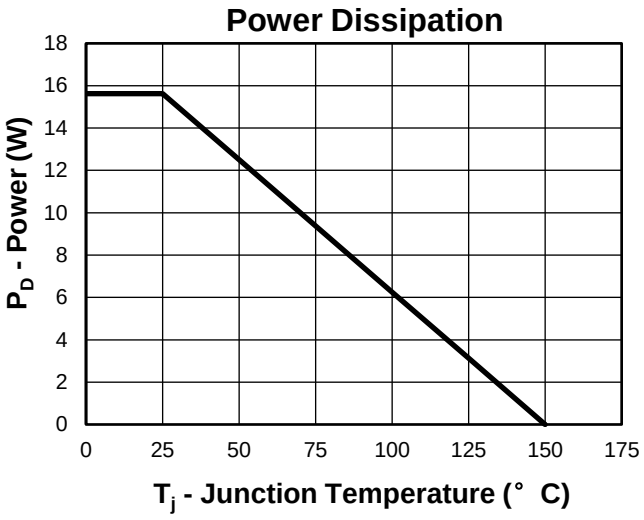
Ordering and Marking Information

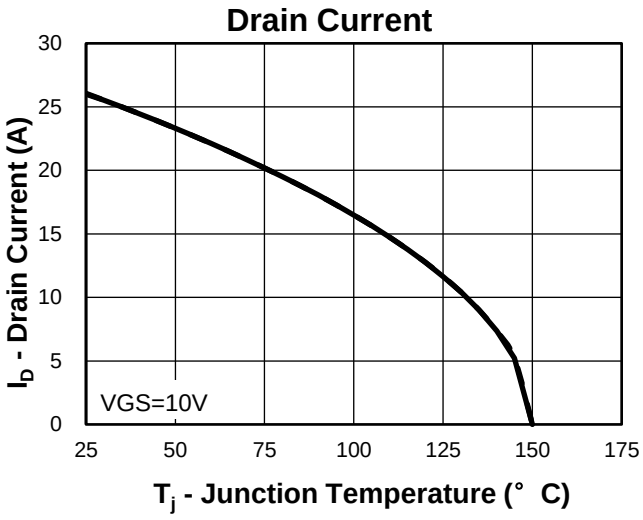
Device	Package	Packaging	Quantity	Reel Size	Tape width
KS3428UA3T	SDFN3030 DP2	Tape&Reel	5000	13"	12mm

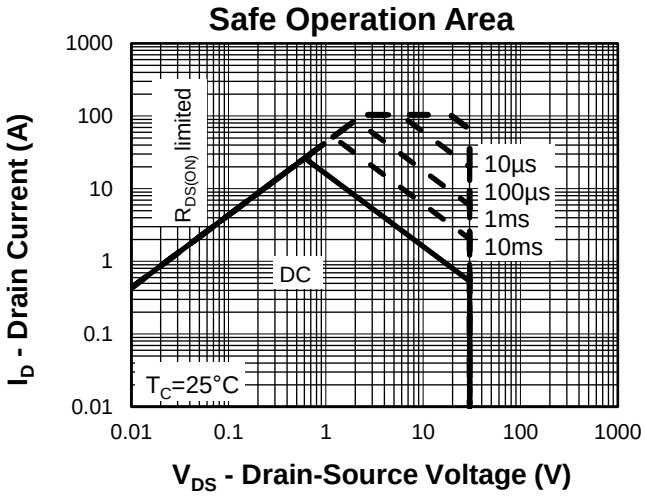


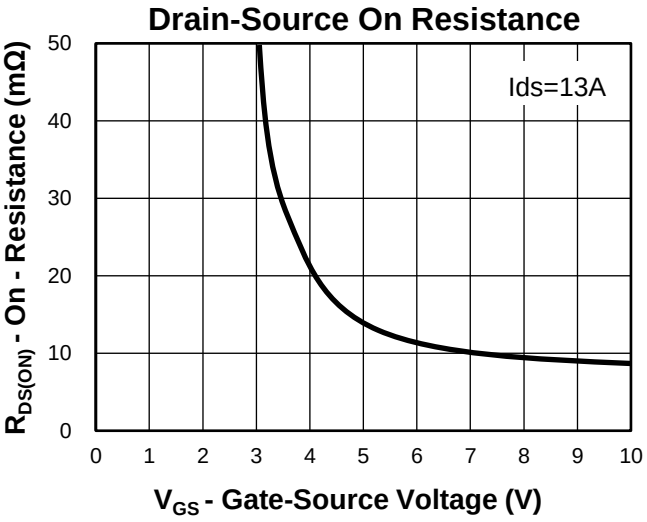
1st Line: Kwansemi Code(KS)
2nd Line: Part Number(3428T)
3rd Line: Lot Number(YWWXXX)

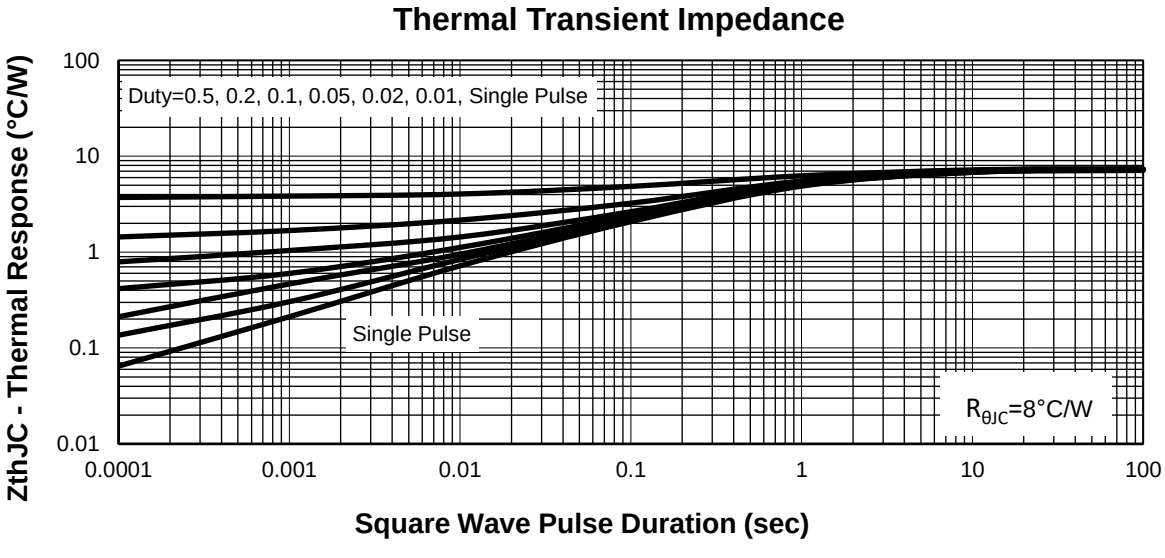
Typical Characteristics(Q1-Channel)





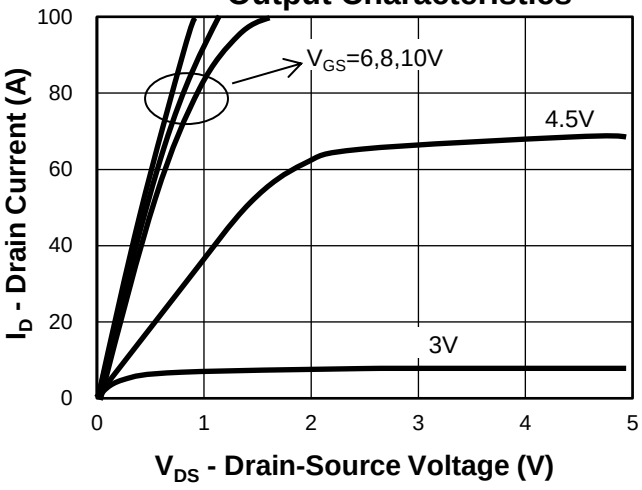




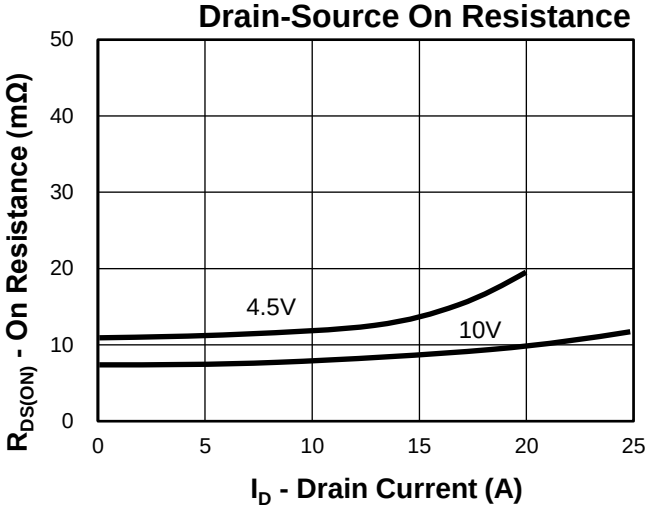


Typical Characteristics(Q1-Channel)

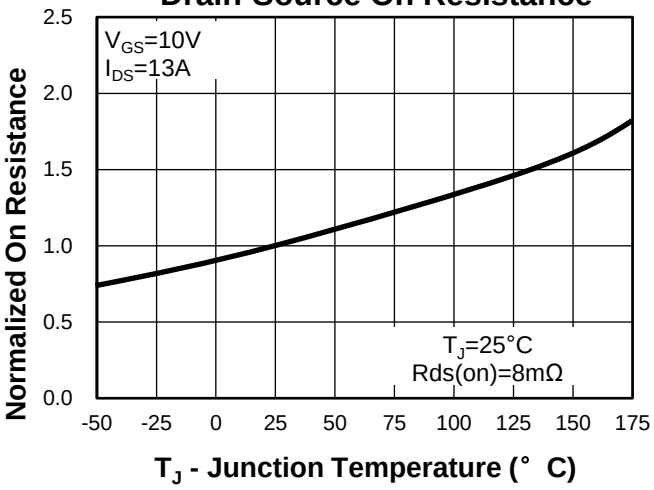
Output Characteristics



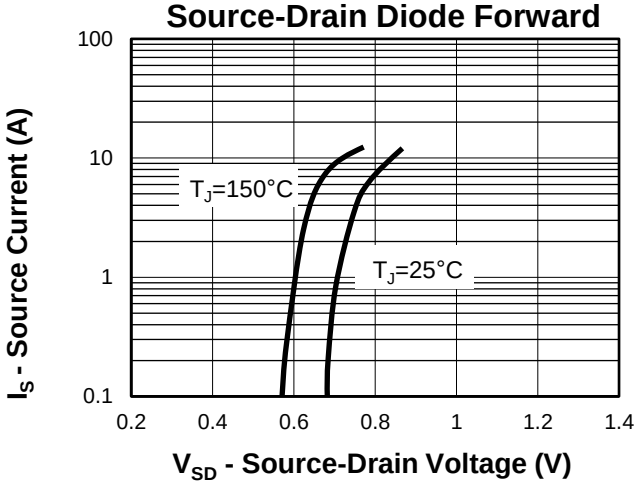
Drain-Source On Resistance



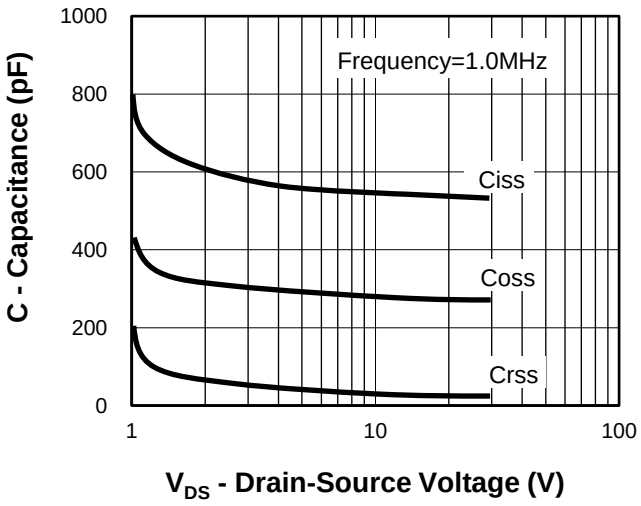
Drain-Source On Resistance



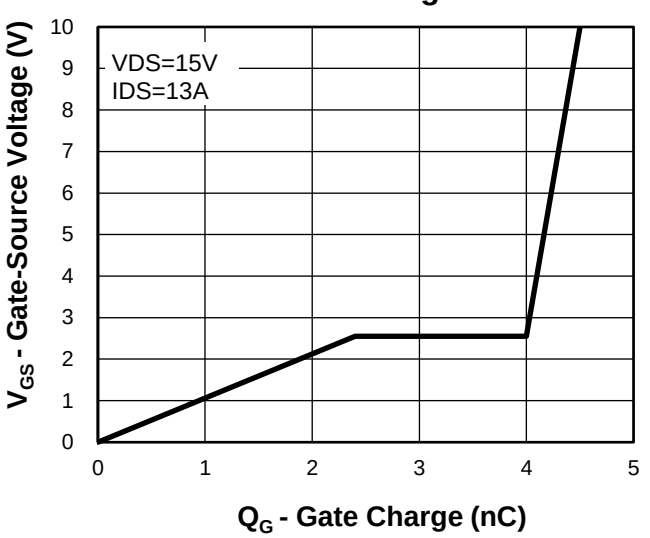
Source-Drain Diode Forward



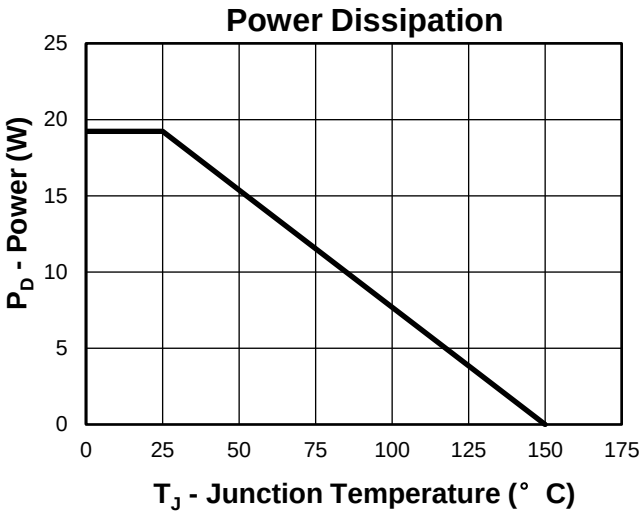
Capacitance

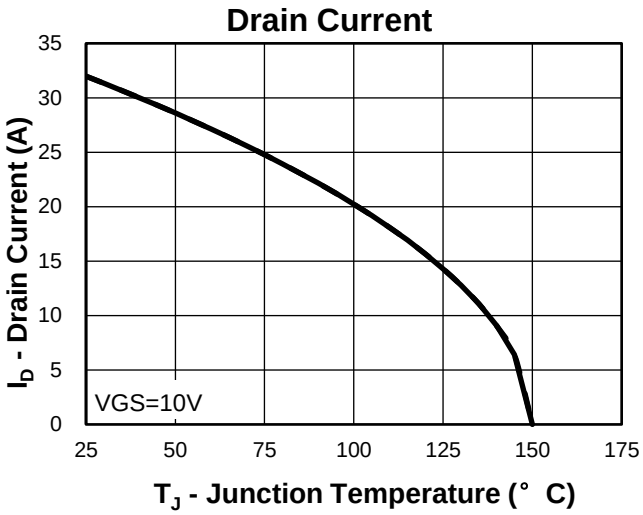


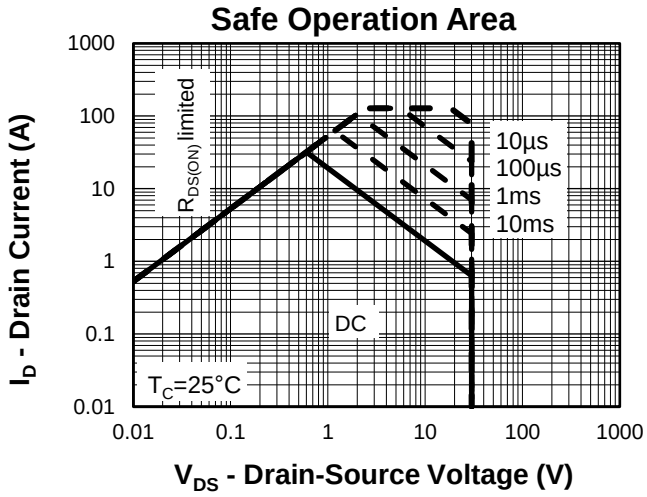
Gate Charge

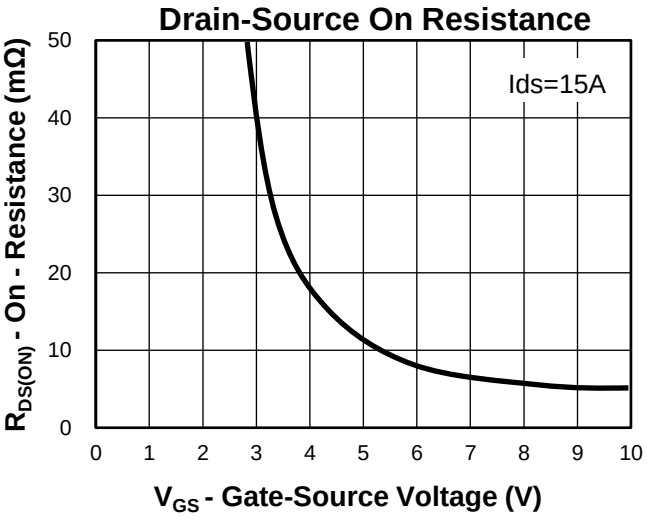


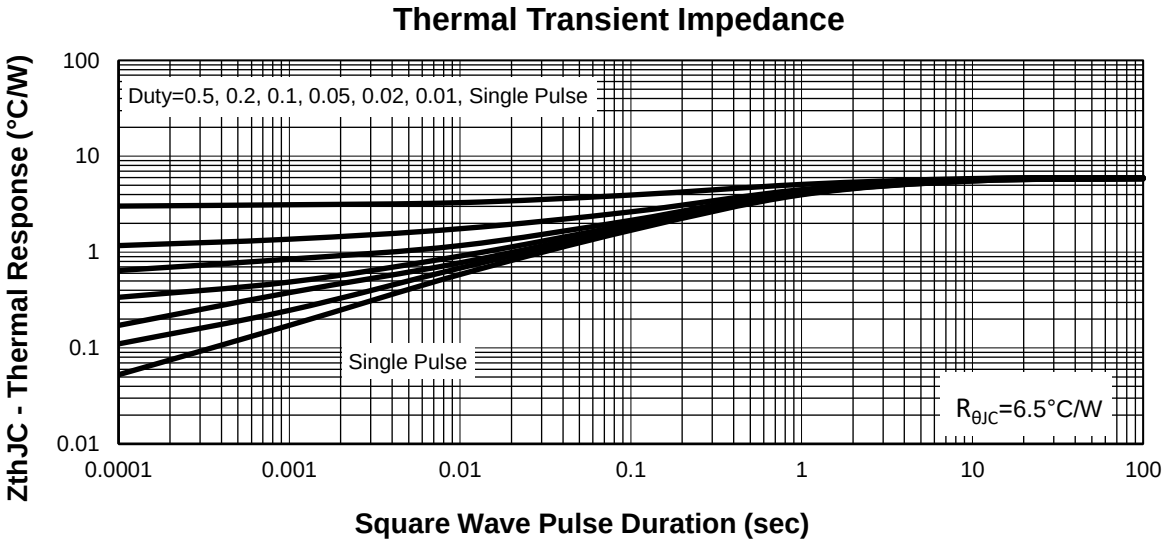
Typical Characteristics(Q2-Channel)



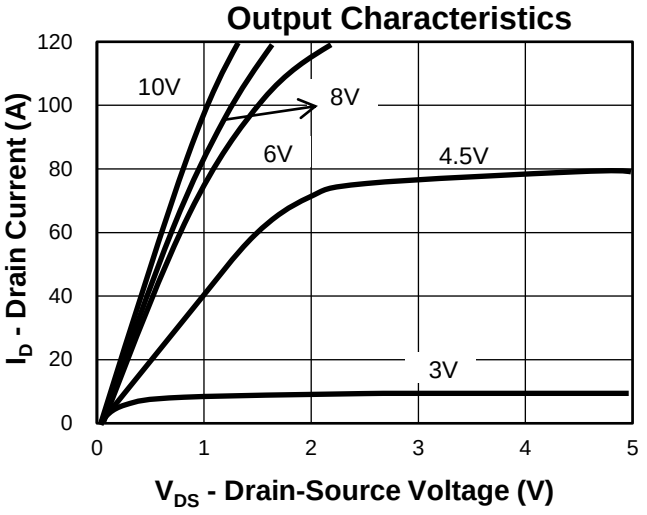


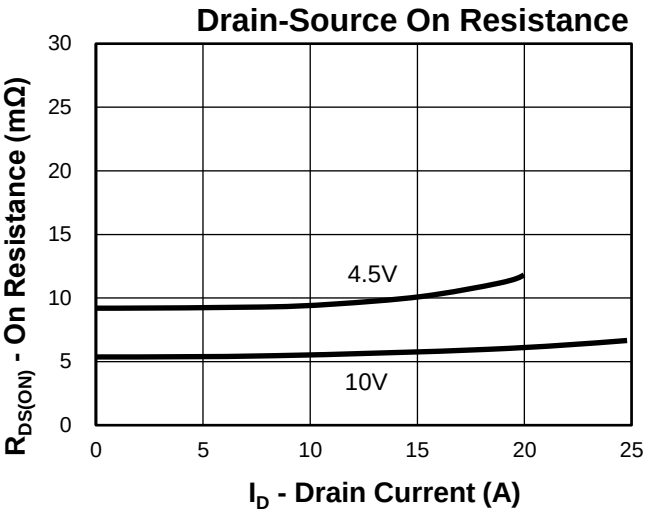


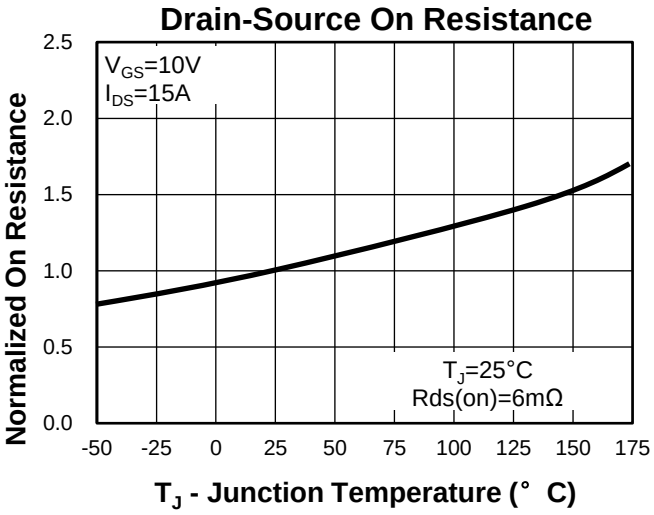


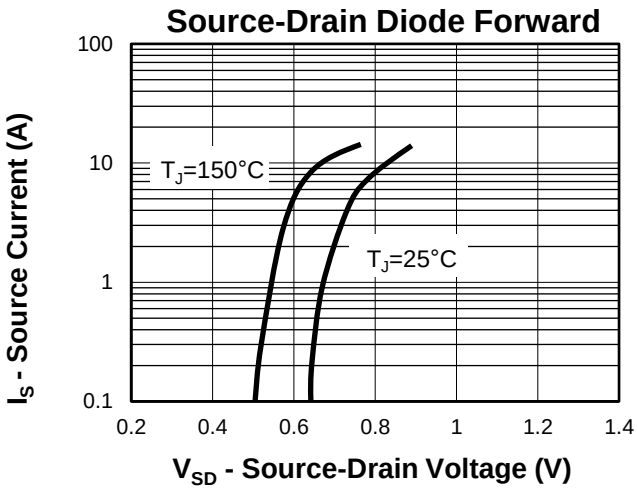


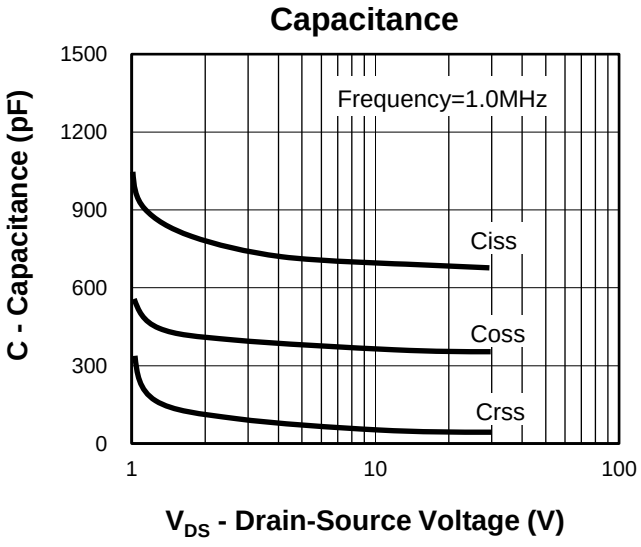
Typical Characteristics(Q2-Channel)

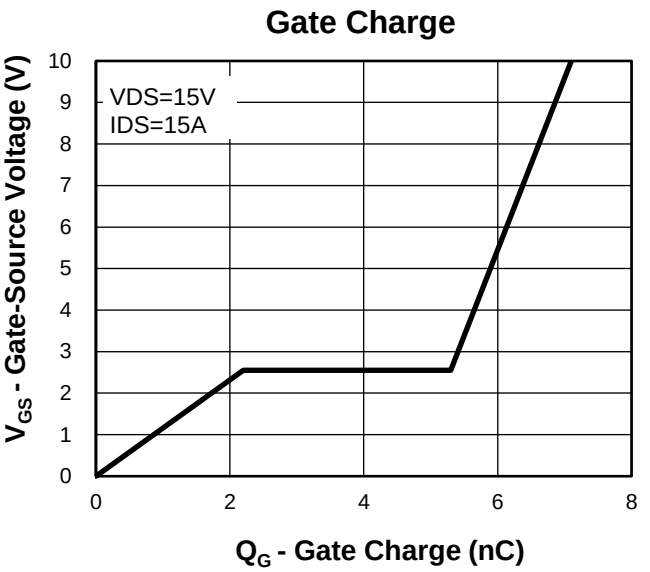






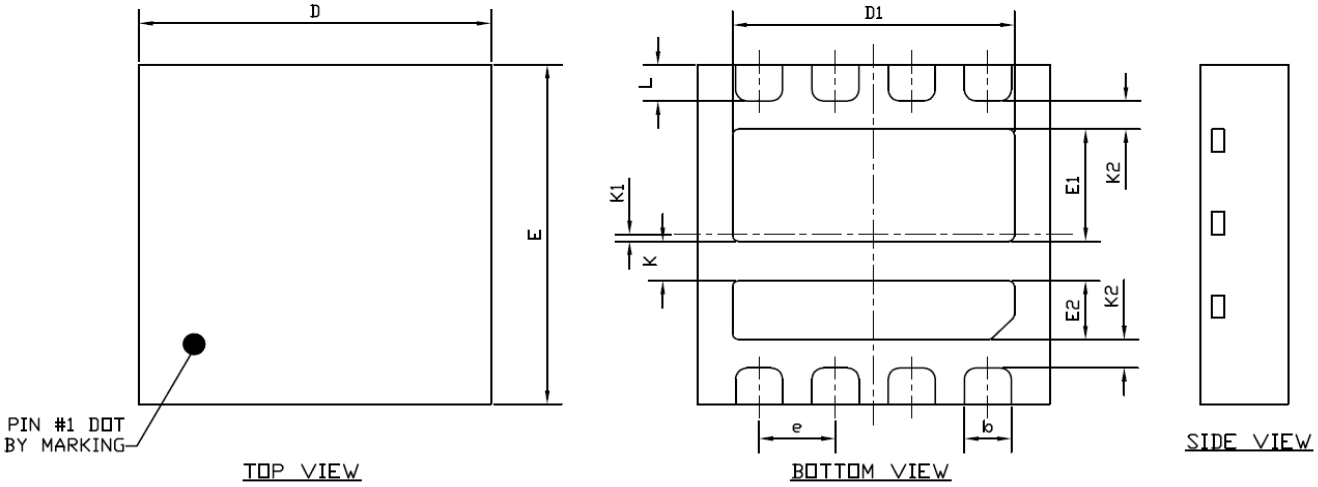


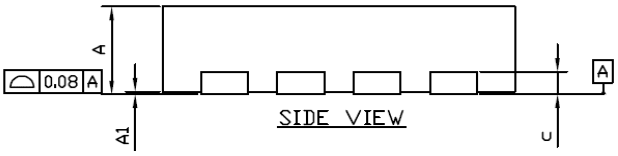


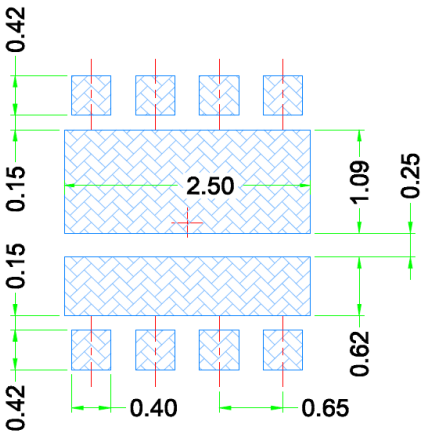


Package Information

SDFN3030 DP2



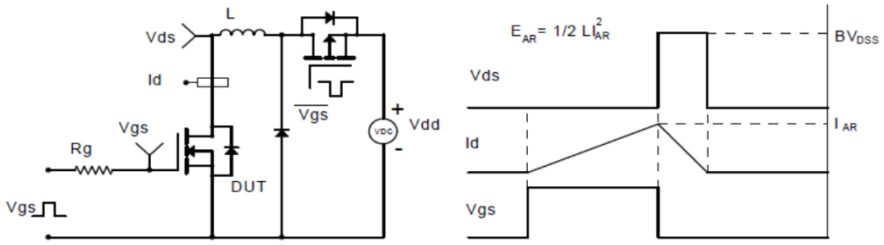




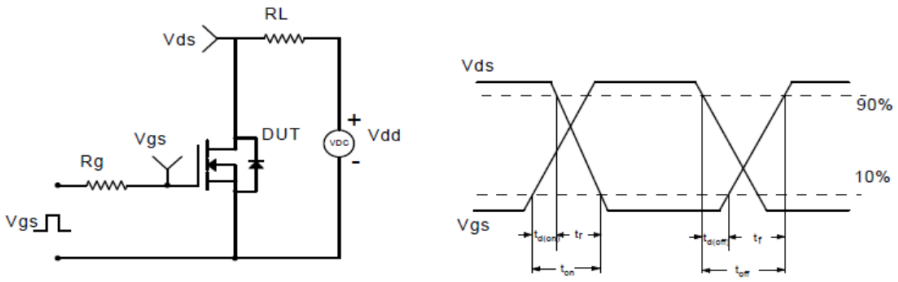
Land Pattern
(Only for Reference)

SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.70	0.75	0.80	0.028	0.030	0.031
A1	0.00		0.05	0.000		0.002
b	0.35	0.40	0.45	0.014	0.016	0.018
c		0.20 REF.			0.008 REF.	
D	2.90	3.00	3.10	0.114	0.118	0.122
D1	2.30	2.40	2.50	0.091	0.094	0.098
E	2.90	3.00	3.10	0.114	0.118	0.122
E1	0.89	0.99	1.09	0.035	0.039	0.043
E2	0.42	0.52	0.62	0.017	0.020	0.024
e		0.65 BSC			0.026 BSC	
L	0.27	0.32	0.35	0.011	0.013	0.014
K		0.35 REF.			0.014 REF.	
K1		0.06 REF.			0.002 REF.	
K2		0.25 REF.			0.010 REF.	

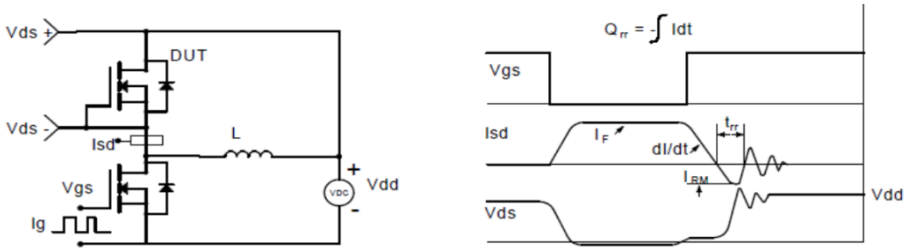
Avalanche Test Circuit and Waveforms



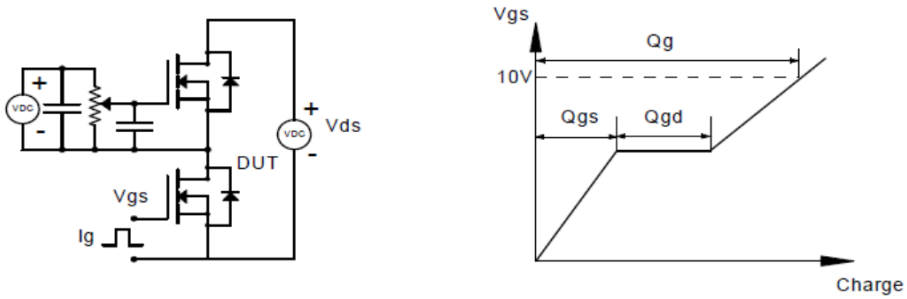
Switching Time Test Circuit and Waveforms



Diode Recovery Test Circuit and Waveforms



Gate Charge Test Circuit and Waveform



Customer Service

Kwansemi Semiconductor Co.,Ltd

Email:Sales@kwansemi.com

Web:www.kwansemi.com

DISCLAIMER: