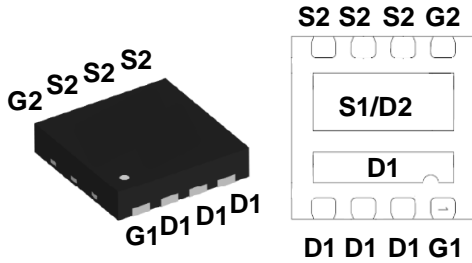


A. Dual N-Channel 30-V (D-S) MOSFET

PRODUCT SUMMARY			
V _{DS} (V)	R _{DS(on)} (Ω) MAX.	I _D (A) ^a	Q _g (TYP.)
30	0.008 at V _{GS} = 10V	26	15 nC

DFN3x3 Asymmetric Dual Pin Configuration



FEATURES

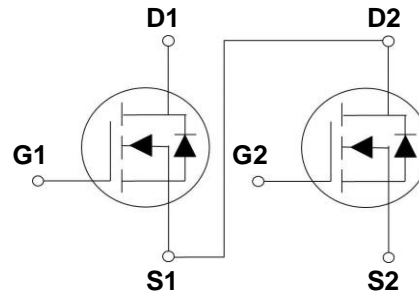
- DT-Trench Power MOSFET
- 100 % R_g and UIS tested
- ESD Protection Diode Embedded



RoHS
COMPLIANT

APPLICATIONS

- MB / VGA / Vcore
- POLBuckApplications



Absolute Maximum Ratings T_c=25°C unless otherwise noted

Symbol	Parameter	Q1	Q2	Units
V _{DS}	Drain-Source Voltage	30	30	V
V _{GS}	Gate-Source Voltage	±20	±20	V
I _D	Drain Current – Continuous (T _C =25°C)	26	26	A
	Drain Current – Continuous (T _C =100°C)	18.7	18.7	A
	Drain Current – Continuous (T _A =25°C)	13.9	13.9	A
	Drain Current – Continuous (T _A =100°C)	8.9	8.9	A
I _{DM}	Drain Current – Pulsed ¹	100	100	A
EAS	Single Pulse Avalanche Energy ²	20	20	mJ
IAS	Single Pulse Avalanche Current ²	20	20	A
P _D	Power Dissipation (T _C =25°C)	27	27	W
	Power Dissipation – Derate above 25°C	0.01	0.01	W/°C
T _{STG}	Storage Temperature Range	-55 to 150		°C
T _J	Operating Junction Temperature Range	-55 to 150		°C

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Q1	---	61	°C/W
R _{θJA}	Q2			
R _{θJC}	Q1	---	4.5	°C/W
R _{θJC}	Q2			

Absolute Maximum Ratings Tc=25°C unless otherwise noted

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT	
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	Q1	30	---	---	V
			Q2	30	---	---	V
ΔBV _{DSS} /ΔT _J	BV _{DSS} Temperature Coefficient	Reference to 25°C , I _D =1mA	Q1	---	0.04	---	V/°C
			Q2	---	0.04	---	V/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} =30V , V _{GS} =0V , T _J =25°C	Q1	---	---	1	uA
			Q2	---	---	1	uA
		V _{DS} =24V , V _{GS} =0V , T _J =125°C	Q1	---	---	10	uA
			Q2	---	---	10	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V , V _{DS} =0V	Q1	---	---	±100	nA
			Q2	---	---	±100	nA
R _{DS(ON)}	Static Drain-Source On-Resistance ³	V _{GS} =10V , I _D =10A	Q1	---	8.0	10.5	mΩ
		V _{GS} =10V , I _D =10A	Q2	---	8.0	10.5	mΩ
		V _{GS} =4.5V , I _D =5A	Q1	---	11	14	mΩ
		V _{GS} =4.5V , I _D =5A	Q2	---	11	14	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	Q1	1.2	1.6	2.5	V
			Q2	1.2	1.6	2.5	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient	V _{GS} =V _{DS} , I _D =250uA	Q1	---	-4	---	mV/°C
			Q2	---	-4	---	mV/°C
g _{fs}	Forward Transconductance	V _{DS} =5V , I _D =5A	Q1	---	12	---	S
		V _{DS} =5V , I _D =5A	Q2	---	12	---	S

Dynamic Characteristics

Q _g	Total Gate Charge ^{3, 4}		Q1	---	15	32	nC
			Q2	---	15	32	
Q _{gs}	Gate-Source Charge ^{3, 4}	V _{DS} =15V , V _{GS} =10V , I _D =5A	Q1	---	2.2	5	nC
			Q2	---	2.2	5	
Q _{gd}	Gate-Drain Charge ^{3, 4}		Q1	---	3	6	nC
			Q2	---	3	6	
T _{d(on)}	Turn-On Delay Time ^{3, 4}		Q1	---	3.8	7	ns
			Q2	---	3.8	7	
T _r	Rise Time ^{3, 4}	V _{DD} =15V , V _{GS} =10V , R _G =6Ω	Q1	---	10	19	ns
			Q2	---	10	19	
T _{d(off)}	Turn-Off Delay Time ^{3, 4}	I _D =1A	Q1	---	22	43	ns
			Q2	---	22	43	
T _f	Fall Time ^{3, 4}		Q1	---	6.6	14	ns
			Q2	---	6.6	14	

Absolute Maximum Ratings Tc=25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, F=1MHz	Q1	---	625	900	pF
			Q2	---	625	900	
C _{oss}	Output Capacitance		Q1	---	84	125	
			Q2	---	84	125	
C _{rss}	Reverse Transfer Capacitance		Q1	---	62	90	
			Q2	---	62	90	
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	Q1	---	2.8	5.6	Ω
			Q2	---	2.8	5.6	Ω

Drain-Source Diode Characteristics

I _s	Continuous Source Current	V _G =V _D =0V, Force Current	Q1	---	---	26	A	
			Q2	---	---	26	A	
I _{SM}	Pulsed Source Current ³		Q1	---	---	42	A	
			Q2	---	---	42	A	
V _{SD}	Diode Forward Voltage ³		V _{GS} =0V, I _S =1A, T _J =25°C	Q1	---	---	1	V
				Q2	---	---	1	V

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{DD}=25V, V_{GS}=10V, L=0.1mH, Q1: I_{AS}=16A, Q2: I_{AS}=42A, R_G=25Ω, Starting T_J=25°C.
3. The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.
4. Essentially independent of operating temperature.

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

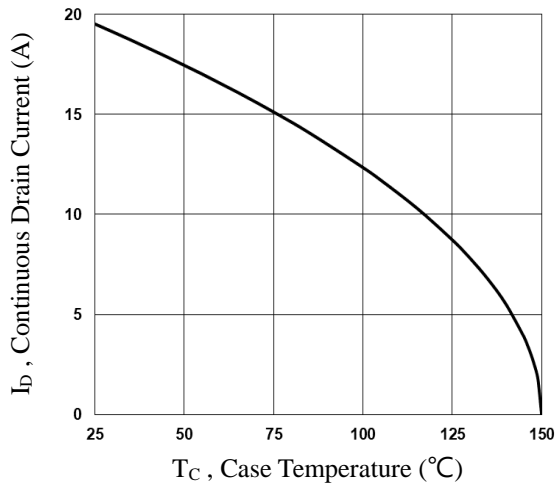


Fig.1 Q1 Continuous Drain Current vs. T_c

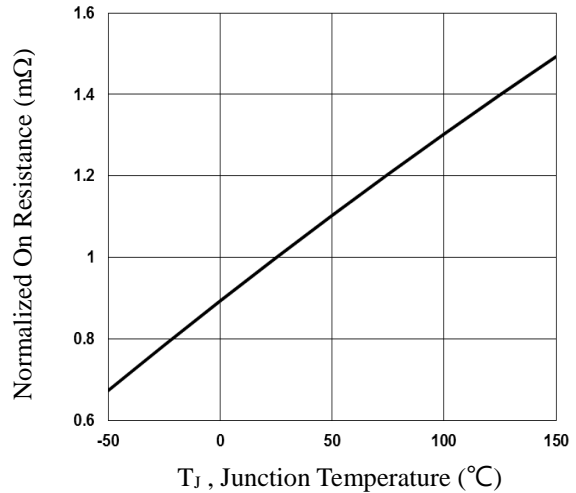


Fig.2 Q1 Normalized R_{DS(on)} vs. T_j

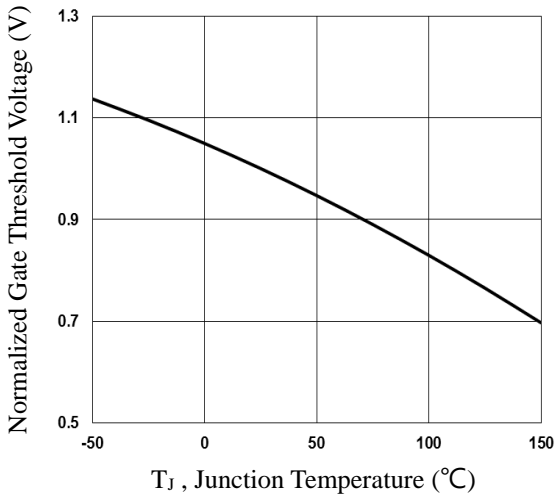


Fig.3 Q1 Normalized V_{th} vs. T_j

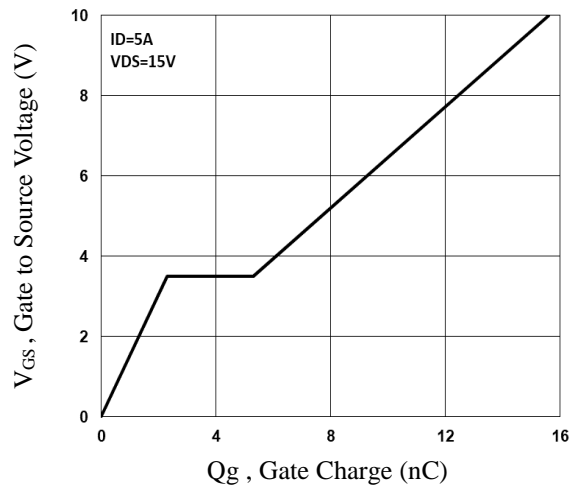


Fig.4 Q1 Gate Charge Waveform

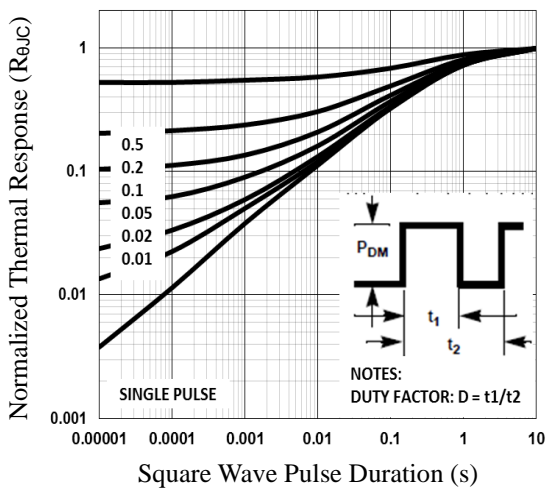


Fig.5 Q1 Normalized Transient Impedance

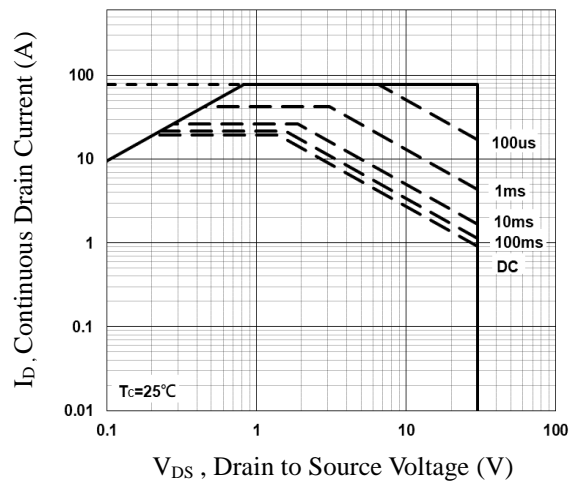


Fig.6 Q1 Maximum Safe Operation Area

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

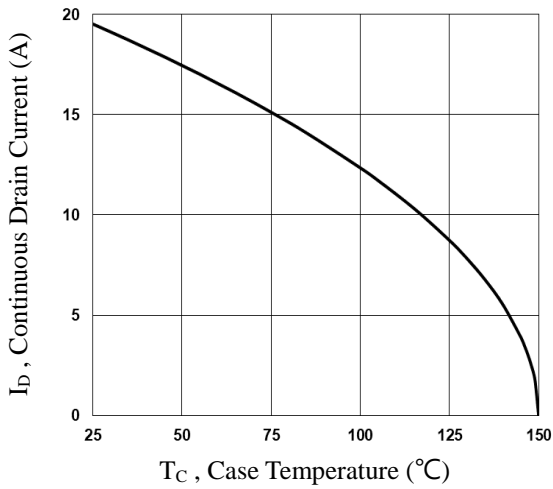


Fig.7 Q2 Continuous Drain Current vs. T_C

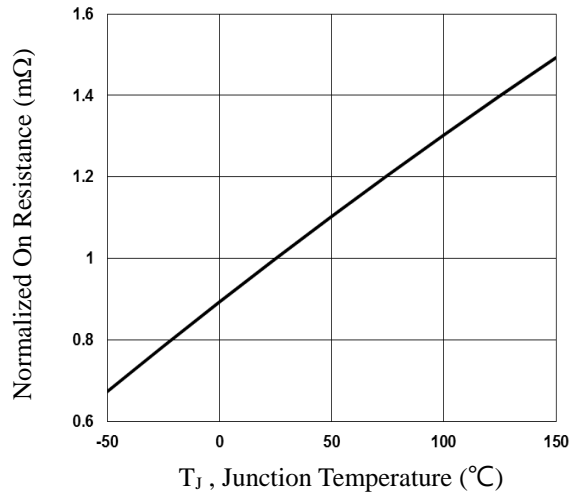


Fig.8 Q2 Normalized $R_{DS(on)}$ vs. T_J

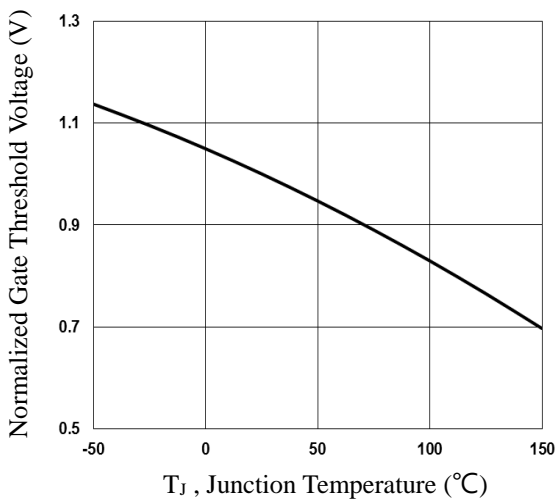


Fig.9 Q2 Normalized V_{th} vs. T_J

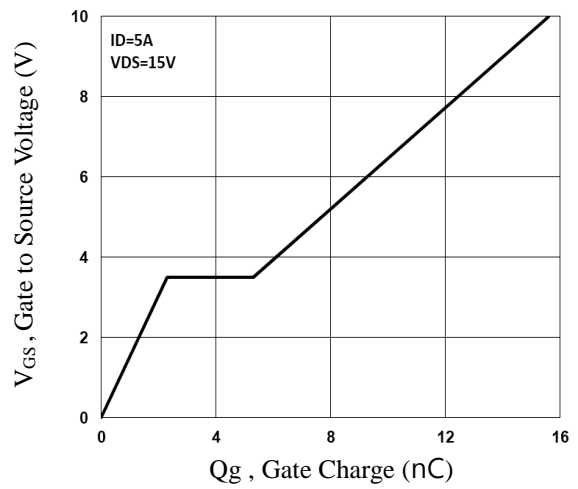


Fig.10 Q2 Gate Charge Waveform

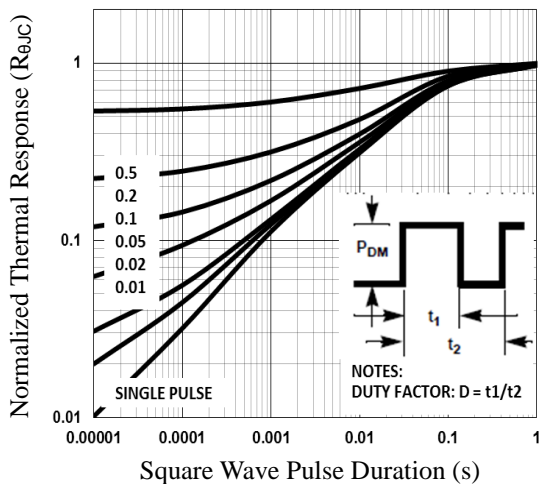


Fig.11 Q2 Normalized Transient Impedance

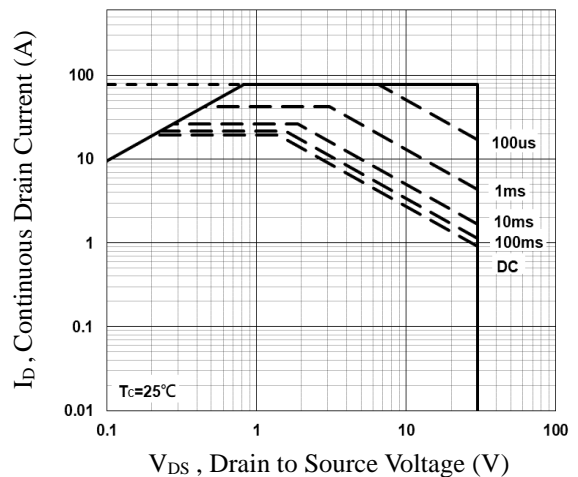
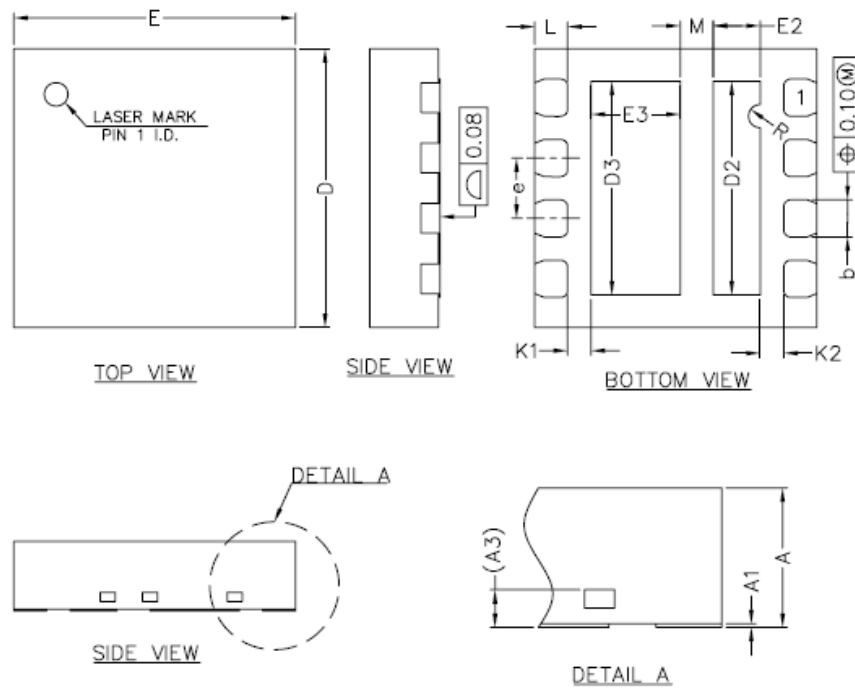


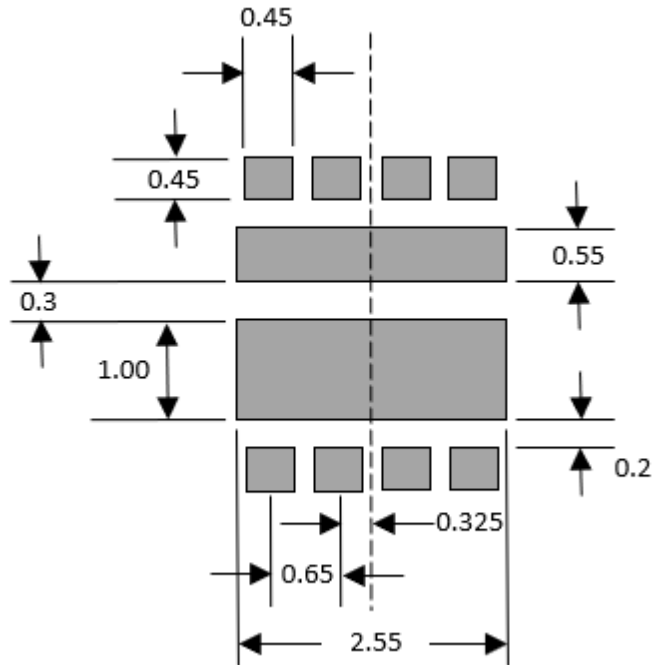
Fig.12 Q2 Maximum Safe Operation Area

DFN3x3 Asymmetric Dual Package Information



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A3	0.20REF		
b	0.35	0.40	0.45
D	2.90	3.00	3.10
E	2.90	3.00	3.10
D2	2.20	2.30	2.40
E2	0.40	0.50	0.60
D3	2.20	2.30	2.40
E3	0.85	0.95	1.05
e	0.55	0.65	0.75
K1	0.15	0.25	0.35
K2	0.15	0.25	0.35
L	0.30	0.35	0.40
M	0.25	0.35	0.45
R	0.125REF		

RECOMMEND FOOTPRINT Information



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