GOSTONE

RoHS COMPLIANT

Dual-N-channel Power MOSFETFET

GEN3015F1

Product Summary

VDSS	VGSS	RDS(ON) TYP/MAX	ID MAX
30V	± 20V	3.8/5.2mΩ@VGS=10V 6.1/10.2 mΩ@VGS=4.5V	**49**

VDSS	VGSS	RDS(ON) TYP/MAX	ID MAX
30V	± 20V	6.6/9.9 mΩ@VGS=10V 11.5/15.0 mΩ@VGS=4.5V	**29**

Features

- Low RDSon
- Low Gate Charge
- High Current Capacity
- Halogen-Free / RoHS Compliant

Application

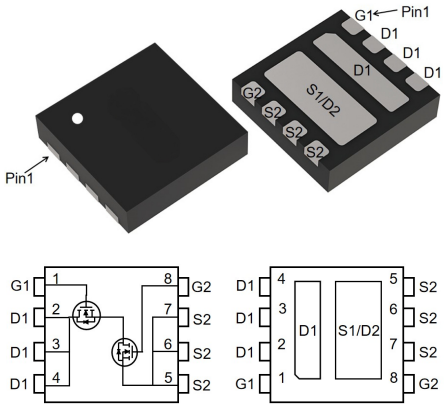
- DC/DC Converters.

Marking Symbol Code



GS : Gostone (fixed)
GEN3015F1: Marking Device Code (fixed)
A: Factory Code
Y: Year Code
WW: Week Code
LT: LOT Code
o : Pin#1 Identifier

DFN3030-D



Form

- Tape & Reel Embossed Type: 5,000pcs / reel

Absolute Maximum Rating Ta=25℃

Parameter		Symbol	Rating		Unit
			Q1	Q2	
Drain to Source Voltage		VDS	30	30	V
Gate to Source Voltage		VGS	±20	±20	V
Continuous Drain Current	Tc=25°C	ID	29	49	A
	Tc=100°C		19	30	A
Pulsed Drain Current[*1]		IDM	59	98	A
Continuous Drain Current	T_A=25°C	IDSM	11	14	A
	T_A=70°C		9	11	A
Avalanche Current		IAS	14	20.6	A
Avalanche Energy	L=0.1mH	EAS	9.8	21.2	mJ
Power Dissipation	Tc=25°C	PD	13.2	22.4	W
	Tc=100°C		5.3	8.9	W
Power Dissipation[*3]	T_A=25°C	PDSM	3.7	4.2	W
	T_A=70°C		2.4	2.7	W
Junction Temperature		Tj	150	150	℃
Storage Temperature		Tstg	-55 to +150	-55 to +150	℃

[*1]Pulse width limited by maximum junction temperature.
[*2]The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25℃.
[*3]The Power dissipation is based on R_{thJA} t ≤ 10s value.

Thermal Characteristics (Typical)

Parameter		Symbol	TYP	TYP	Unit
			Q1	Q2	Unit
Junction-to Ambient (T_A=25°C)					
	Steady-State	RthJA[*2]	58.6	57.0	℃/W
Junction-to Case (Tc=25°C)					
	Steady-State	RthJC	7.3	4.3	℃/W

Q1-Channel Electrical Characteristics (Tj=25degC)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	VDSS	ID=250μA, VGS=0V	30			V
Zero Gate Voltage Drain Current	IDSS	VDS=24V, VGS=0V			1	μA
Gate-Source Leakage Current	IGSS	VGS=±20V, VDS=0V			±100	nA
Gate-Source Threshold Voltage	Vth	VDS=VGS, ID=250μA	1.20	1.60	2.40	V
Drain-Source On-State Resistance	RDS(on)1 RDS(on)2	ID=9.5A, VGS=10V ID=9A, VGS=4.5V		6.6 11.5	9.9 15.0	mΩ
Forward Transconductance	gFS	VGS=5V, ID=9.5A		45		S
Input Capacitance *1 Output Capacitance *1 Reverse Transfer Capacitance *1	Ciss Coss Crss	VDS=15V, VGS=0V, f=1MHz		520 390 23		pF
Gate Resistance *1	Rg	f=1MHz		2.0		Ω
Turn-On Delay Time *1 *2 Rise Time *1 *2	td(on) tr	VDD=15V, VGS=10V, ID=9.5A		5.5 5.0		ns
Turn-Off Delay Time *1 *2 Fall Time *1 *2	td(off) tf	VDD=15V, VGS=10V, ID=9.5A		18.0 10.0		ns
Total Gate Charge *1 Gate-Source Charge *1 Gate-Drain Charge *1	Qg Qgs Qgd	VDD=15V, VGS=10V, ID=9.5A		10.4 1.6 2.6		nC
Diode Forward Voltage	VSD	IS=9.5A, VGS=0V			1.1	V
Maximum Body Diode Continuous Current	IS				12	A
Body Diode Reverse Recovery Time *1 Body Diode Reverse Recovery Charge *1	trr Qrr	IF=9.5A, di/dt=100A/μs		23.0 8.5		ns nC

Note *1 Guaranteed by Design

Note *2 Measurement Circuit for Switching Characteristics

Q2-Channel Electrical Characteristics (Tj=25degC)

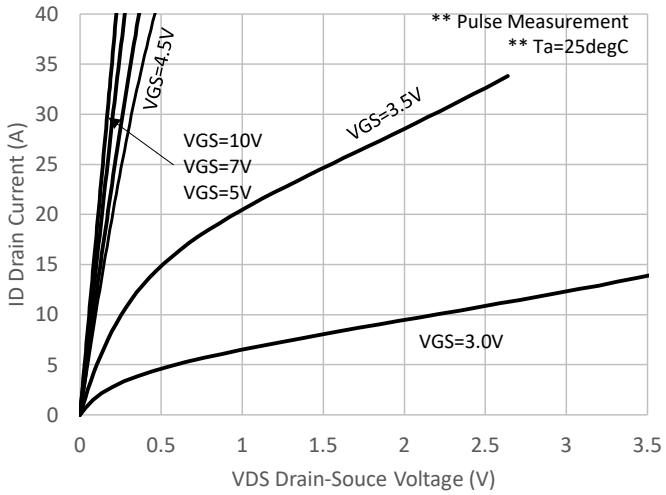
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	VDSS	ID=250μA, VGS=0V	30			V
Zero Gate Voltage Drain Current	IDSS	VDS=24V, VGS=0V			1	μA
Gate-Source Leakage Current	IGSS	VGS=±20V, VDS=0V			±100	nA
Gate-Source Threshold Voltage	Vth	VDS=VGS, ID=250μA	1.2	1.7	2.4	V
Drain-Source On-State Resistance	RDS(on)1 RDS(on)2	ID=13A, VGS=10V ID=13A, VGS=4.5V		3.8 6.1	5.2 10.2	mΩ
Forward Transconductance	gFS	VGS=5V, ID=13A		78		S
Input Capacitance *1 Output Capacitance *1 Reverse Transfer Capacitance *1	Ciss Coss Crss	VDS=15V, VGS=0V, f=1MHz		820 607 40		pF
Gate Resistance *1	Rg	f=1MHz		2.8		Ω
Turn-On Delay Time *1 *2 Rise Time *1 *2	td(on) tr	VDD=15V, VGS=10V, ID=13A		7.2 5.5		ns
Turn-Off Delay Time *1 *2 Fall Time *1 *2	td(off) tf	VDD=15V, VGS=10V, ID=13A		25 11		ns
Total Gate Charge *1 Gate-Source Charge *1 Gate-Drain Charge *1	Qg Qgs Qgd	VDD=15V, VGS=10V, ID=13A		16.3 2.9 4.2		nC
Diode Forward Voltage	VSD	IS=13A, VGS=0V			1.2	V
Maximum Body Diode Continuous Current	IS				23.2	A
Body Diode Reverse Recovery Time *1 Body Diode Reverse Recovery Charge *1	trr Qrr	IF=13A, di/dt=100A/μs		23.8 10.4		ns nC

Note *1 Guaranteed by Design

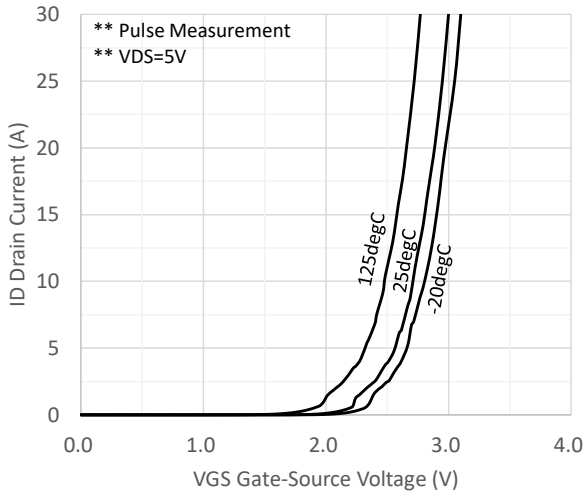
Note *2 Measurement Circuit for Switching Characteristics

Q1-Channel Technical data

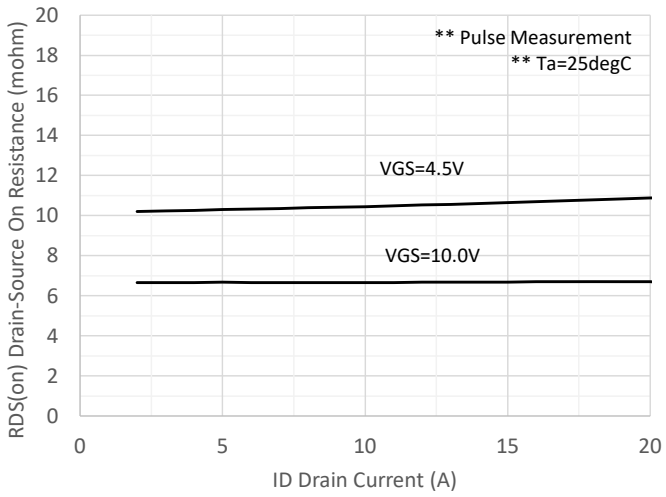
ID to VDS



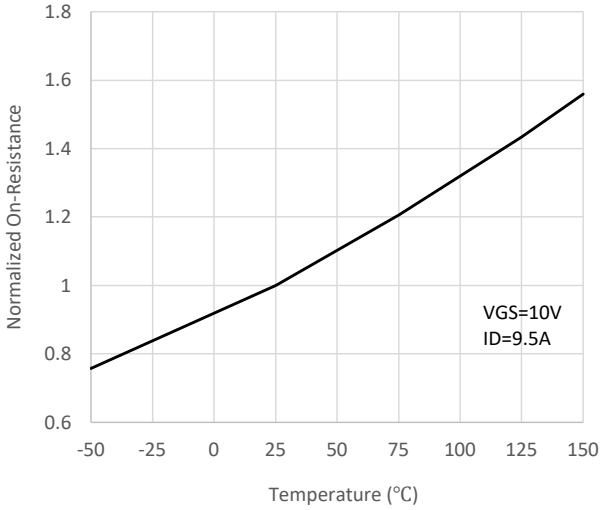
ID to VGS



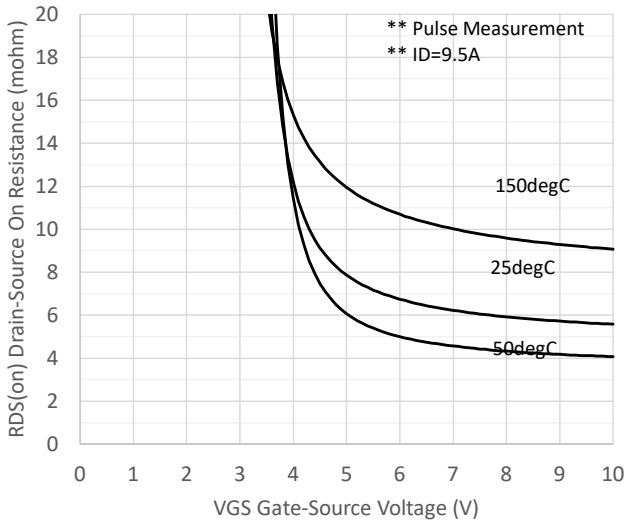
RDS(on) to ID



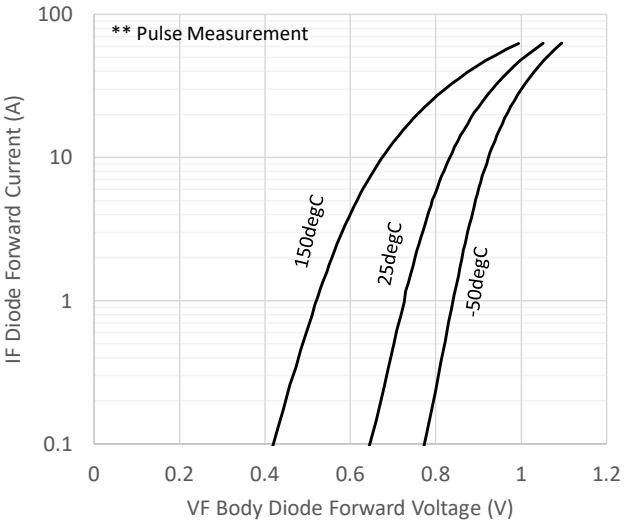
On-Resistance vs Junction Temperature



RDS(on) to VGS

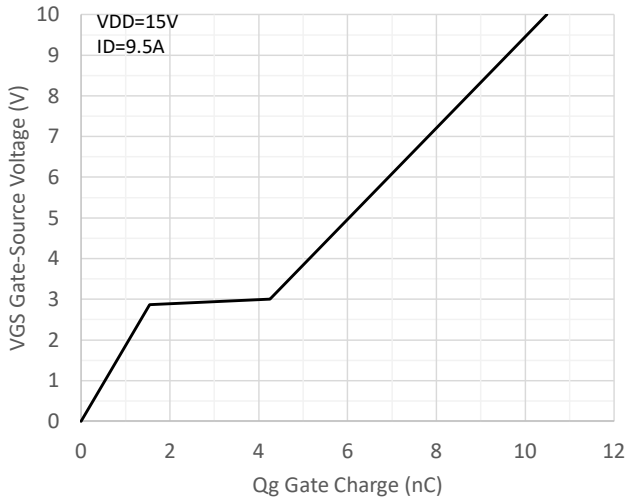


IF to VF

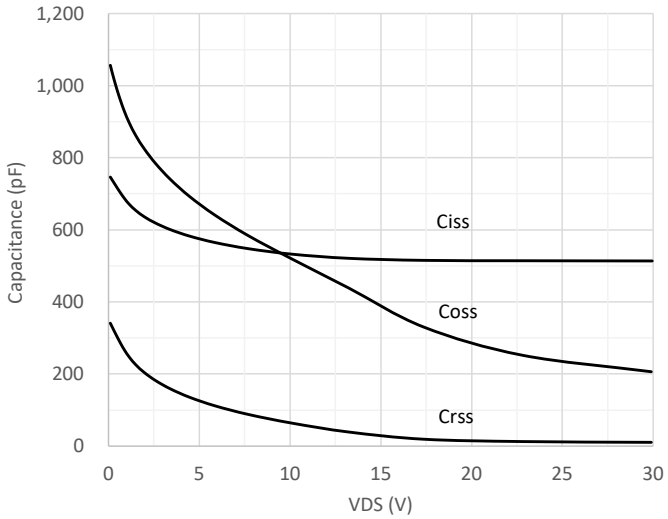


Q1-Channel Technical data

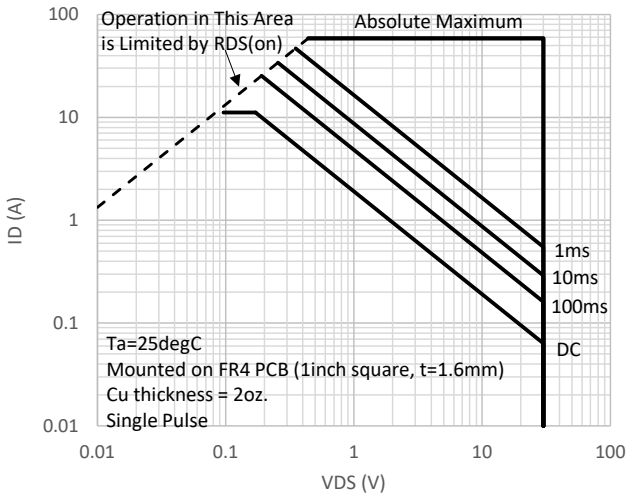
Gate-Charge Characteristics



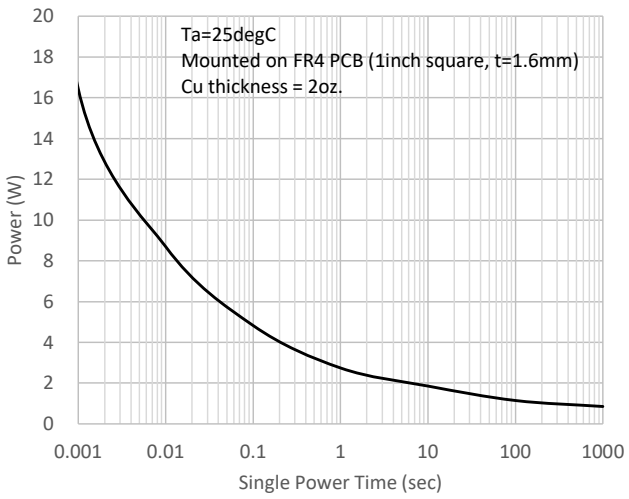
Capacitance Characteristic



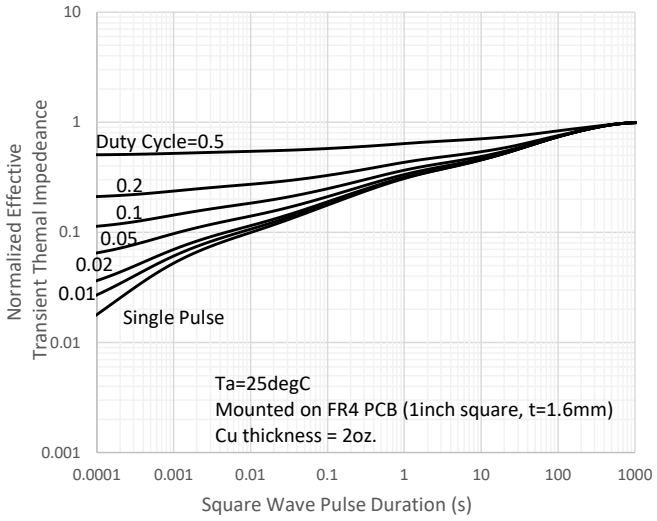
SOA



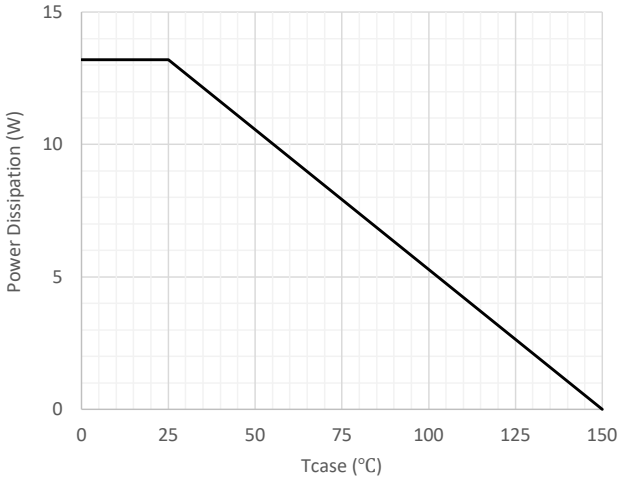
Single Pulse Maximum Power Dissipation



Thermal Response

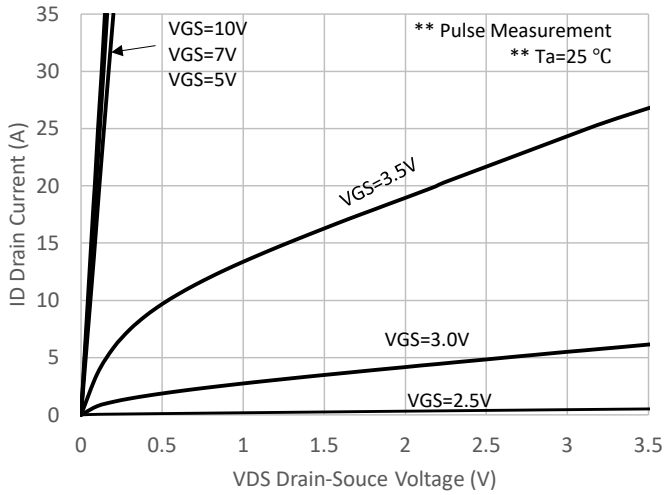


Power Derating

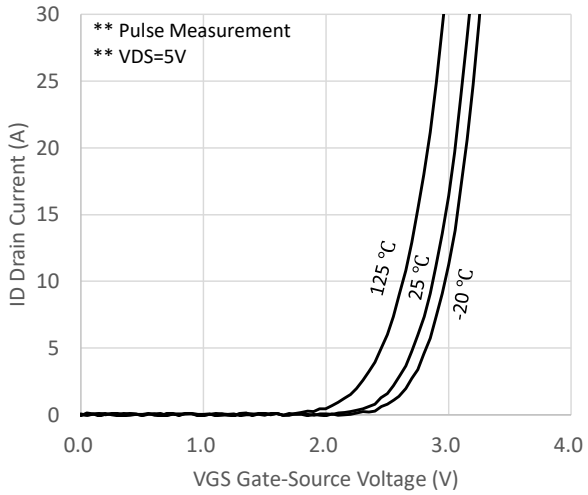


Q2-Channel Technical data

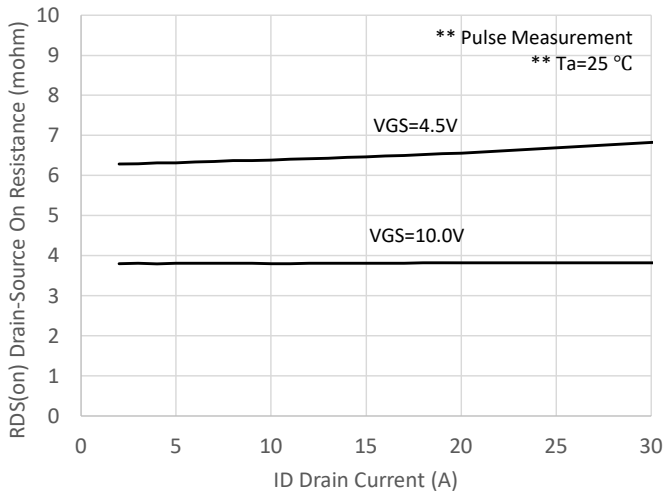
ID to VDS



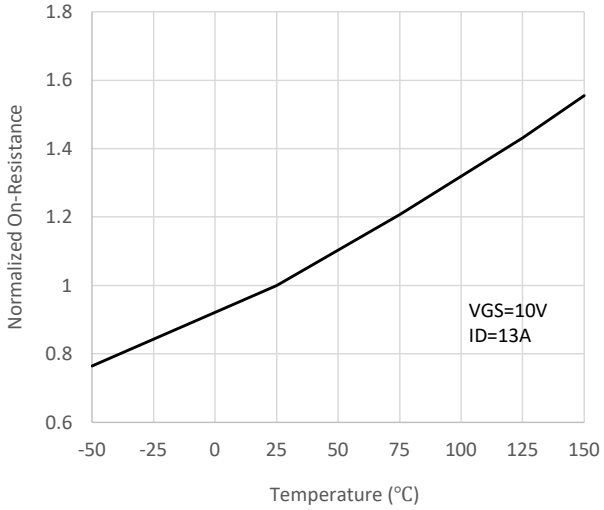
ID to VGS



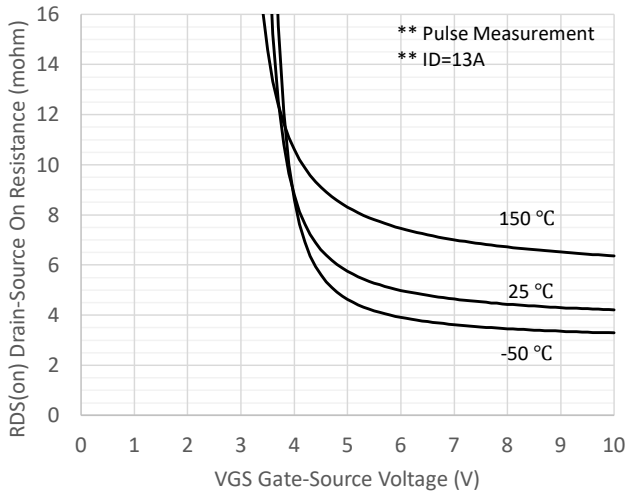
RDS(on) to ID



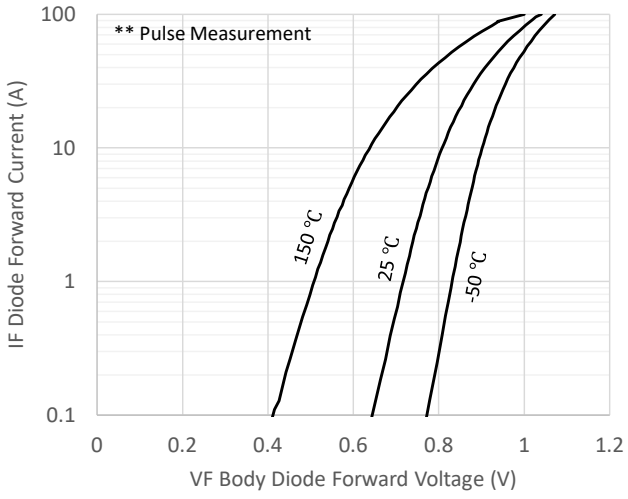
On-Resistance vs Junction Temperature



RDS(on) to VGS

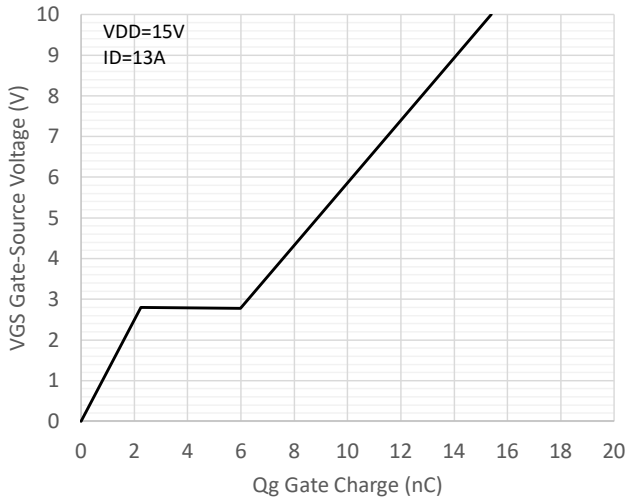


IF to VF

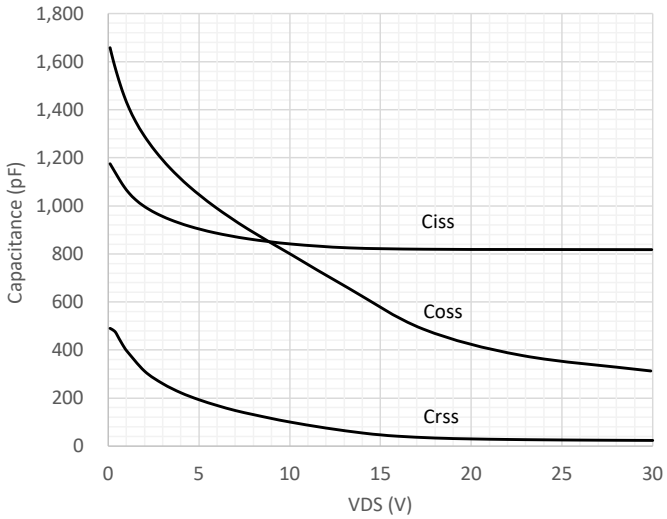


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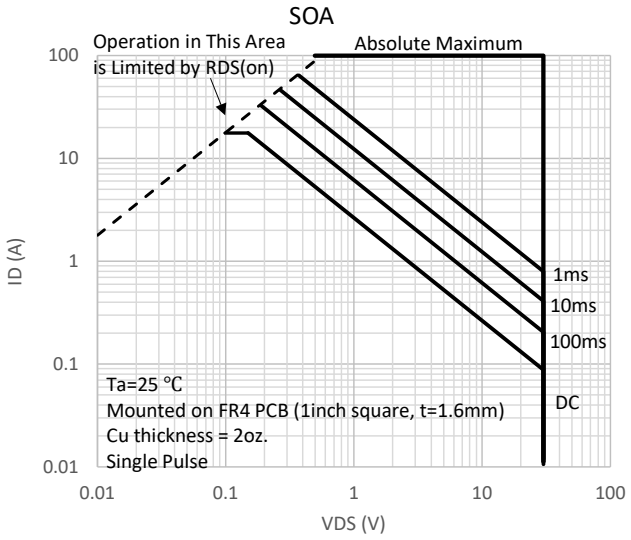
Gate-Charge Characteristics



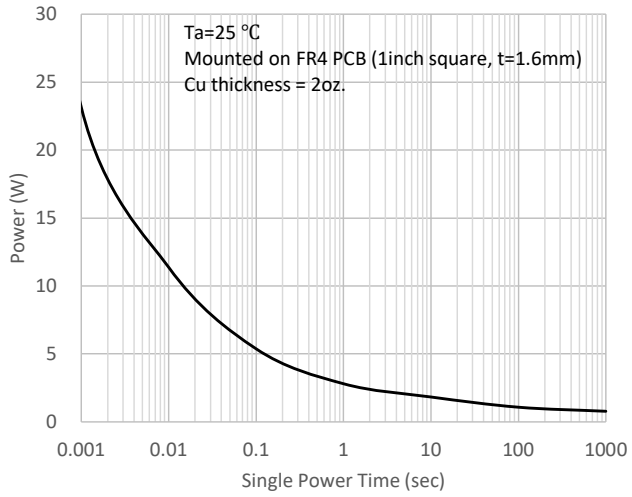
Capacitance Characteristic



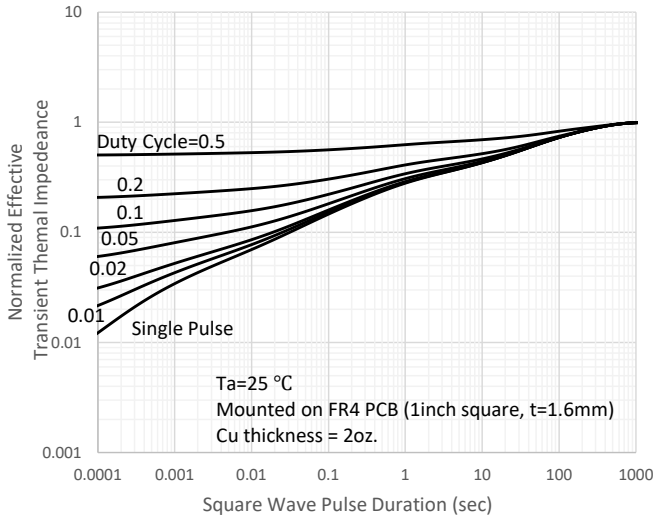
SOA



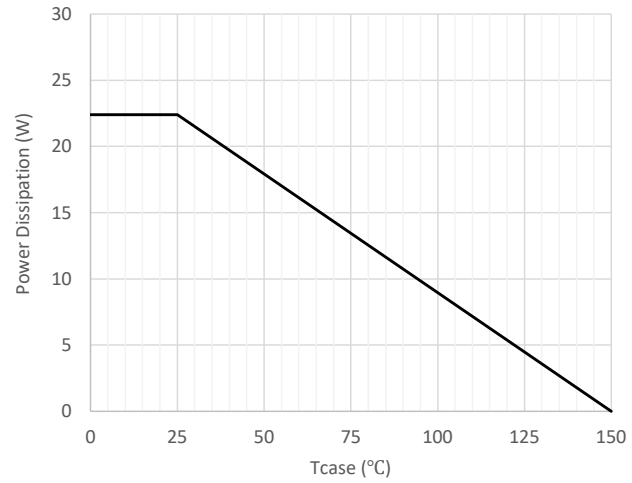
Single Pulse Maximum Power Dissipation



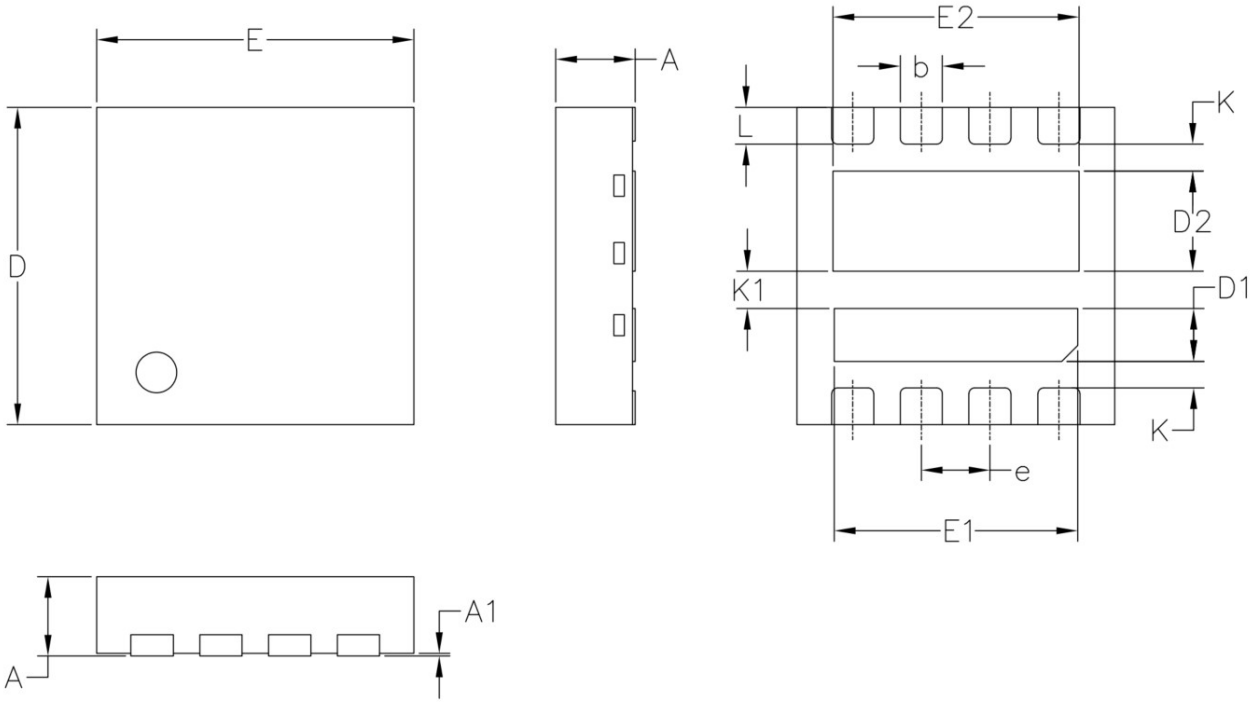
Thermal Response



Power Derating



Package Outline Dimensions: DFN3030-D



Symbol	Dimensions (unit: mm)		
	Min	Typ	Max
A	0.70	0.75	0.80
A1	0.00	--	0.05
b	0.35	0.40	0.45
D	2.90	3.00	3.10
D1	0.40	0.50	0.60
D2	0.85	0.95	1.05
E	2.90	3.00	3.10
E1	2.20	2.30	2.40
E2	2.20	2.325	2.45
e	0.55	0.65	0.75
K	0.15	0.25	0.35
K1	0.25	0.35	0.45
L	0.27	--	0.40

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