

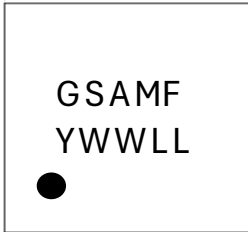
N-channel Power MOSFET:
30V, 3.8mΩ, 20.7A, DFN2020-6L

Product Summary

VDS	VGSS	RDS(ON) TYP/MAX	ID MAX
30V	± 20V	3.8/5.0 mΩ@VGS=10V 5.8/8.8 mΩ@VGS=4.5V	20.7A

Marking Symbol Code

- ❖ Laser Marking Device Code: AM



GS : Gostone (fixed)
AM : Marking Device Code (fixed)
F : Factory Code
Y : Year Code
W : Week Code
L : LOT Code
● : Pin#1 Identifier

Form

- ❖ Tape & Reel Embossed Type: 3,000pcs / reel

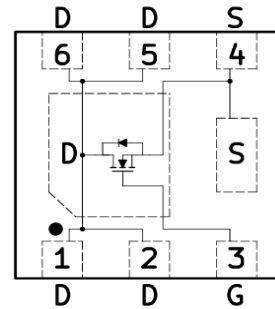
Features

- ❖ Low RDSon
- ❖ Low Gate Charge
- ❖ High Current Capacity
- ❖ Halogen-Free / RoHS Compliant
- ❖ Package: DFN2020-6L

Application

- ❖ Battery Charging & Discharging for NB Battery Pack
- ❖ DC/DC Converters in Computing.

PIN configuration (Top view)



Absolute Maximum Rating Ta=25°C

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	VDS	30	V
Gate to Source Voltage	VGS	±20	V
Continuous Drain Current*3	ID	20.7	A
		16.5	A
Pulsed Drain Current*1	ID,pulse	41	A
Avalanche Current	IAS	21	A
Avalanche Energy	EAS	22	mJ
Power Dissipation*3	PD	3.8	W
		2.4	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55 to +150	°C

Thermal Characteristics (Typical)

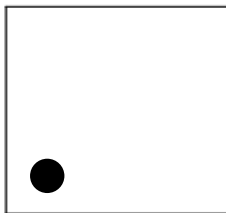
Parameter	Symbol	TYP	Unit
Junction-to Ambient (Ta=25°C)			
t ≤ 10s	RthJA*2	25.3	°C/W
Steady-State		54.2	°C/W

*1Pulse width limited by maximum junction temperature.

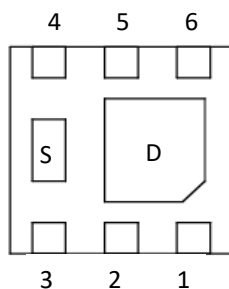
*2The value of RthJA is measured with the device mounted on 1.5in² FR-4 board with 2oz. Copper, in a still air environment with Ta=25°C.

*3The Power dissipation is based on RthJA t ≤ 10s value.

Top View



Bottom View



4: Source
3: Gate
1,2,5,6: Drain

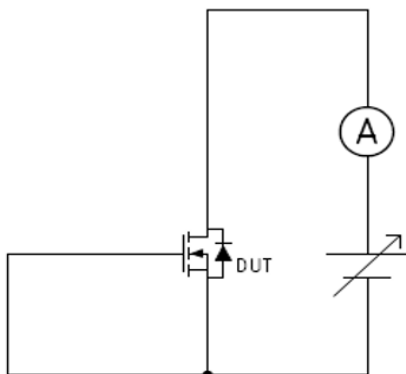
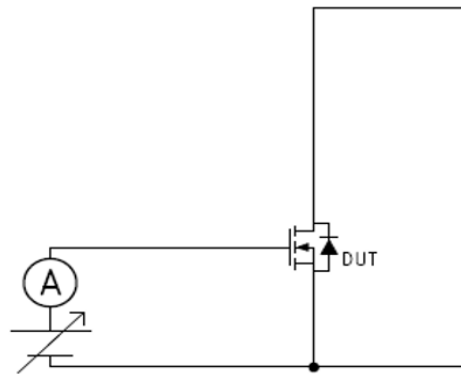
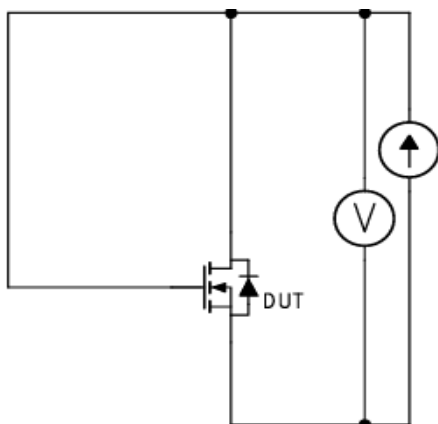
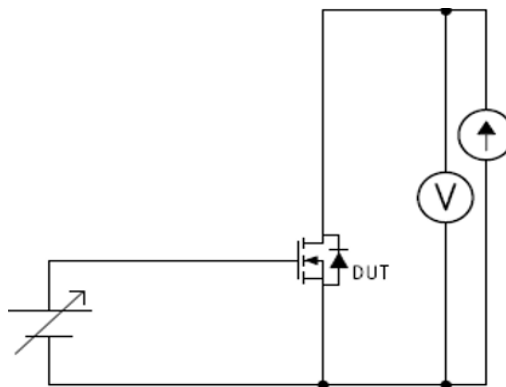
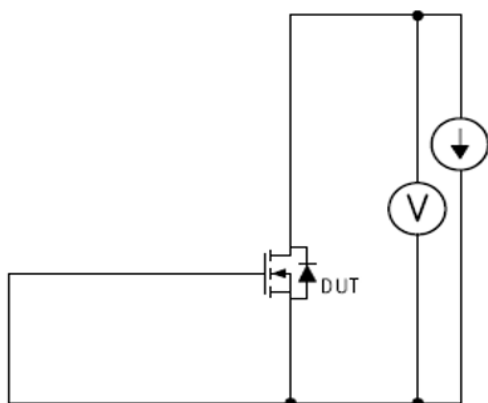
Electrical Characteristics (T_j=25°C)

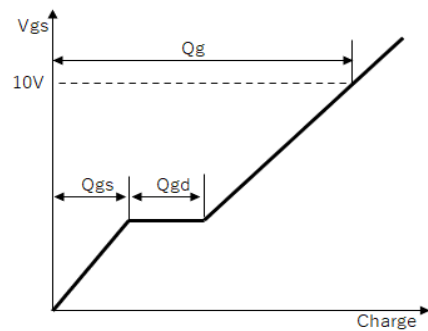
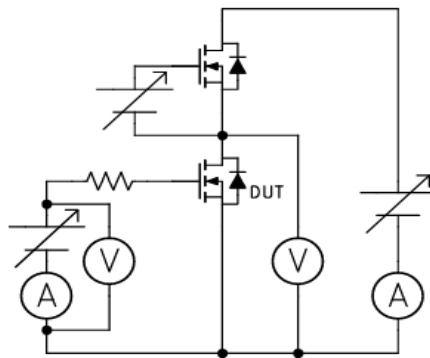
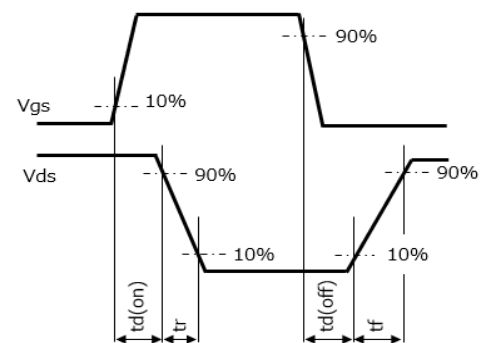
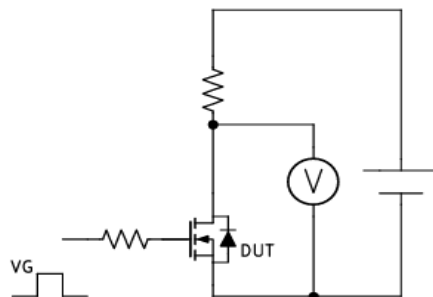
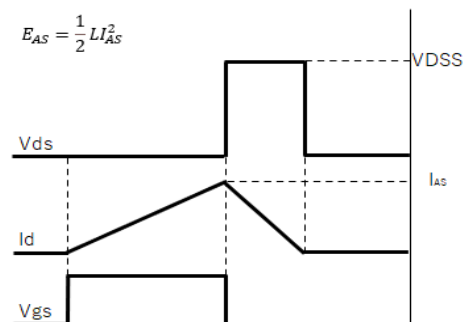
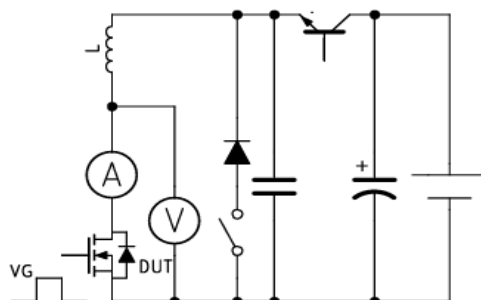
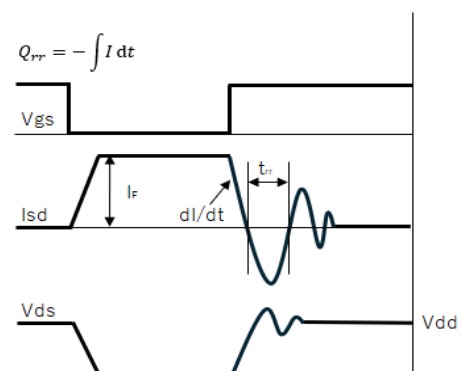
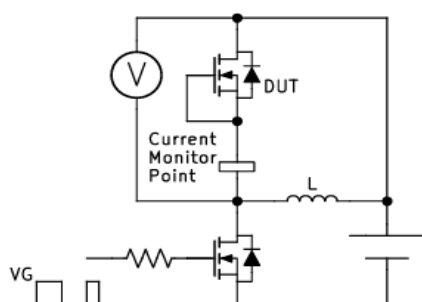
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	VDSS	ID=250μA, VGS=0V	30			V
Zero Gate Voltage Drain Current	IDSS	VDS=30V, VGS=0V			1	μA
Gate-Source Leakage Current	IGSS	VGS=±20V, VDS=0V			±100	nA
Gate-Source Threshold Voltage	V _{th}	VDS=VGS, ID=250μA	1.2	1.6	2.4	V
Drain-Source On-State Resistance	RDS(on)1	ID=18A, VGS=10V		3.8	5.0	mΩ
	RDS(on)2	ID=18A, VGS=4.5V		5.8	8.8	
Forward Transconductance	gFS	VGS=5V, ID=18A		85		S
Input Capacitance *1	Ciss	VDS=15V, VGS=0V, f=1MHz		1,000		pF
Output Capacitance *1	Coss			700		
Reverse Transfer Capacitance *1	Crss			42		
Gate Resistance *1	Rg	f=1MHz		6.2		Ω
Turn-On Delay Time *1 *2	td(on)	VDD=15V, VGS=10V, ID=18A		7		ns
Rise Time *1 *2	tr			5		
Turn-Off Delay Time *1 *2	td(off)	VDD=15V, VGS=10V, ID=18A		25		ns
Fall Time *1 *2	tf			10		
Total Gate Charge *1	Qg	VDD=15V, VGS=10V, ID=18A		19.0		nC
Gate-Source Charge *1	Qgs			3.0		
Gate-Drain Charge *1	Qgd			4.5		
Diode Forward Voltage	VSD	IS=1A, VGS=0V		0.7	1.2	V
Body Diode Reverse Recovery Time *1	trr	IF=18A, di/dt=100A/μs		40		ns
Body Diode Reverse Recovery Charge *1	Qrr			34		nC

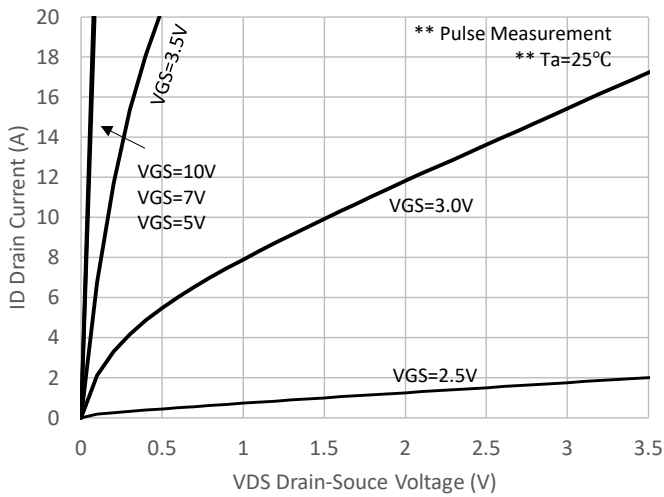
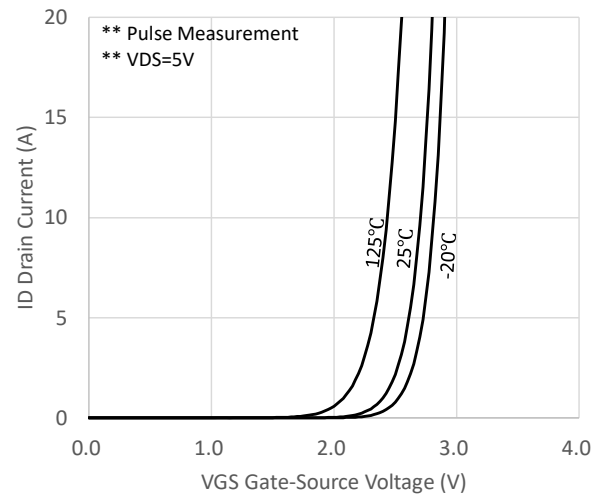
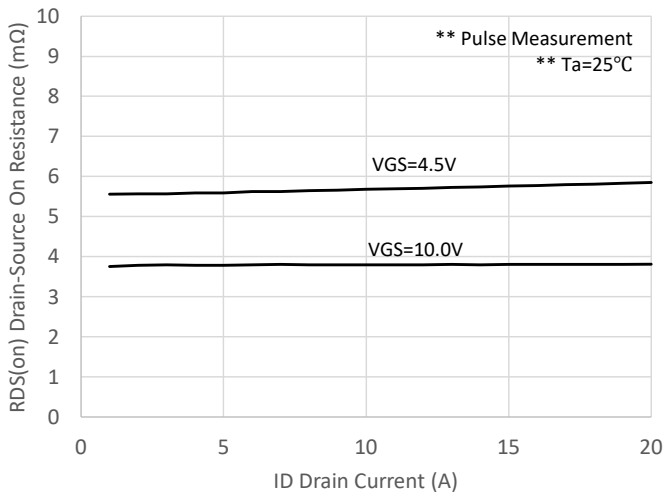
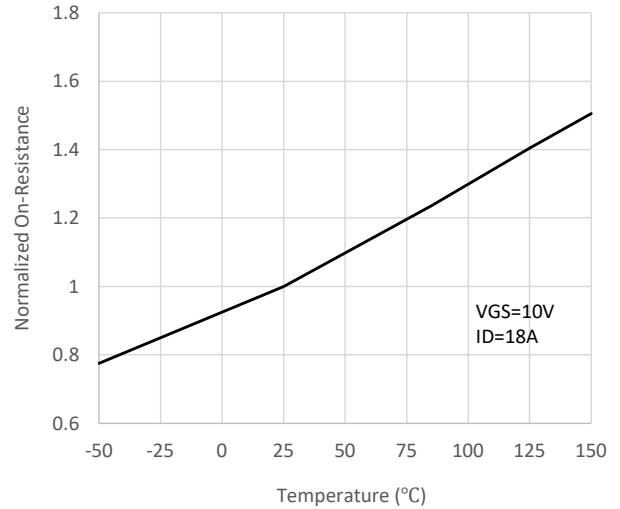
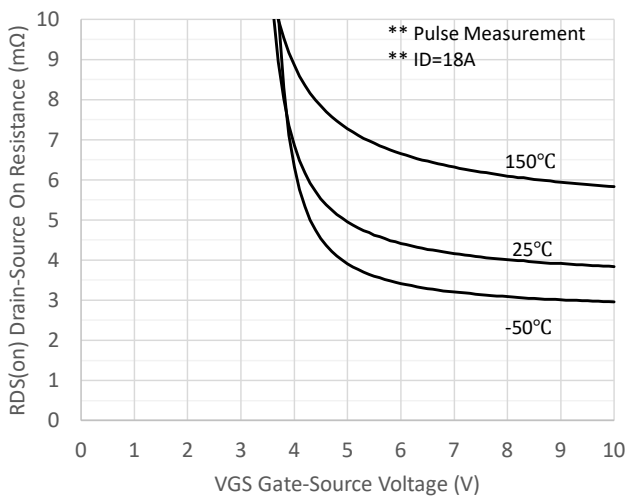
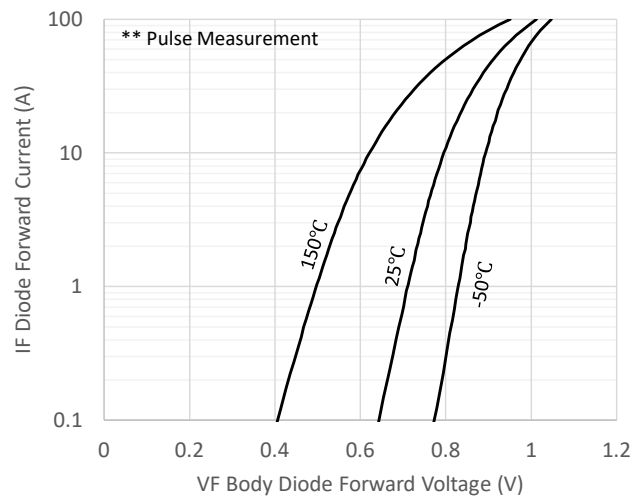
Note *1 Guaranteed by Design

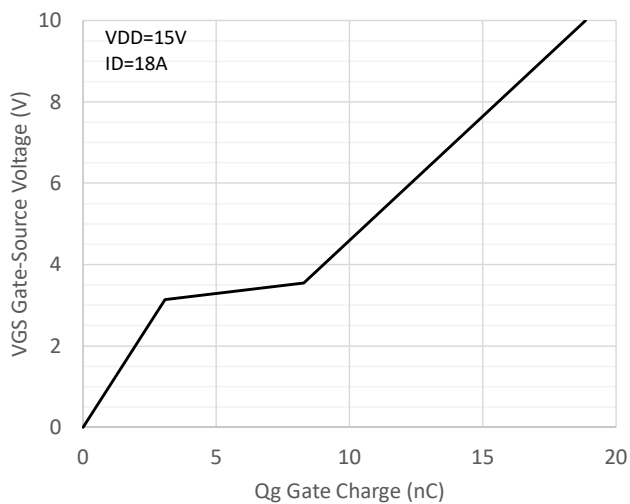
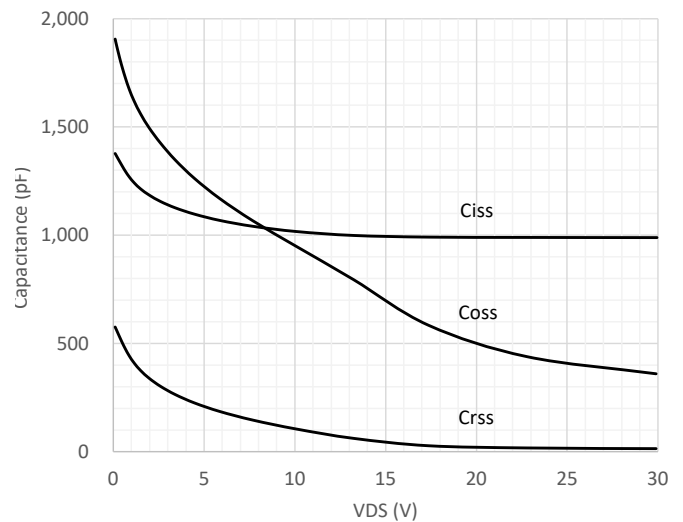
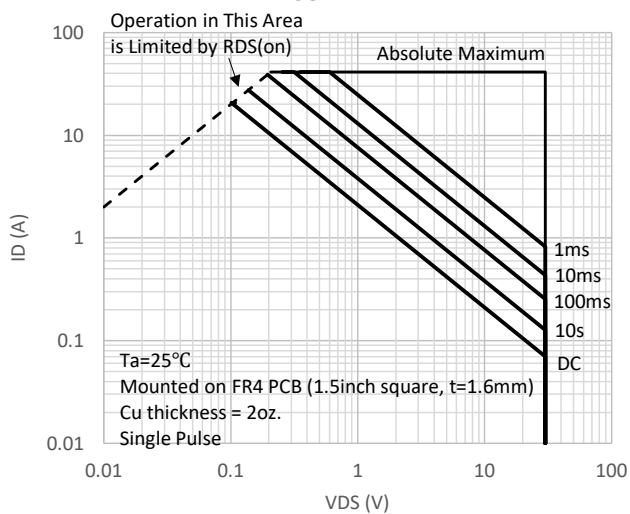
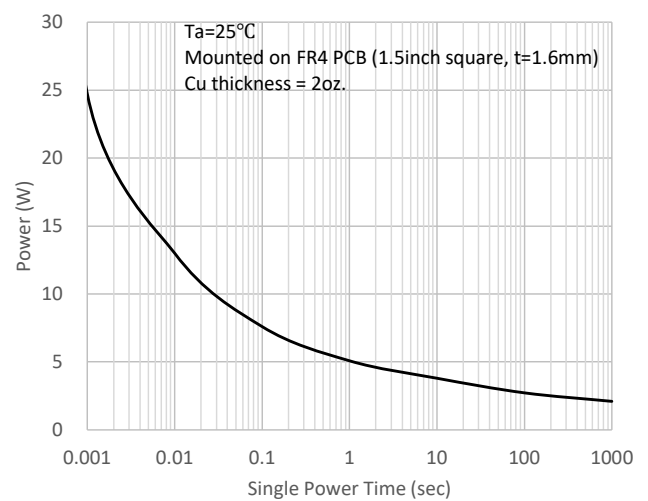
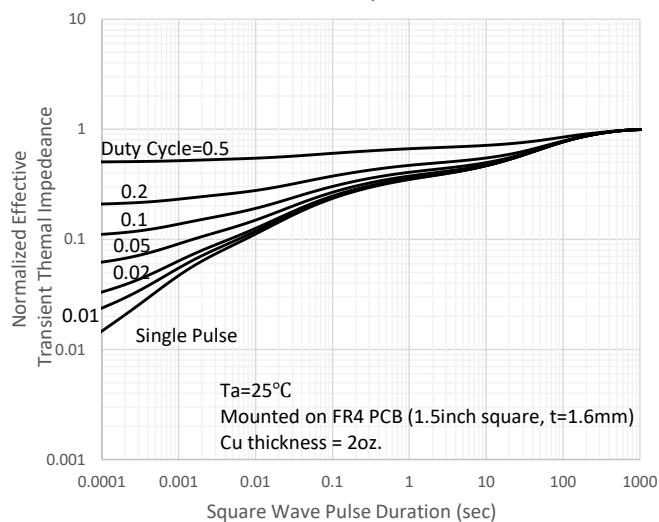
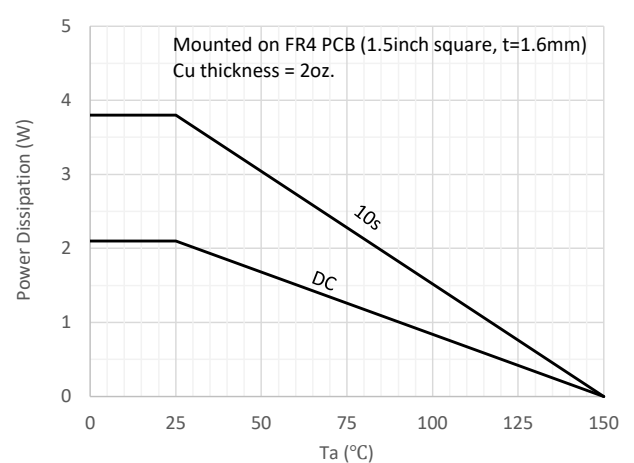
Note *2 Measurement Circuit for Switching Characteristics

Test circuits

 Test Circuit 1
 V_{DS}/I_{DSS}

 Test Circuit 2
 I_{GSS}

 Test Circuit 3
 V_{th}

 Test Circuit 4
 $R_{DS(on)}$

 Test Circuit 5
 V_F


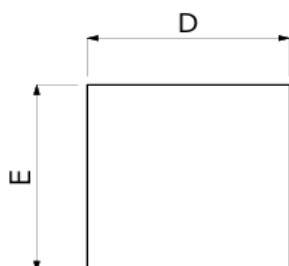
Test circuits
Test Circuit 6
Q_g

Test Circuit 7
Switching Time

Test Circuit 8
IAS

Test Circuit 9
trr/Qrr


Technical data
ID to VDS

ID to VGS

RDS(on) to ID

On-Resistance vs Junction Temperature

RDS(on) to VGS

IF to VF


Technical data
Gate-Charge Characteristics

Capacitance Characteristic

SOA

Single Pulse Maximum Power Dissipation

Thermal Response

Power Derating


Package Outline Dimensions

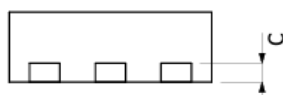
Top View



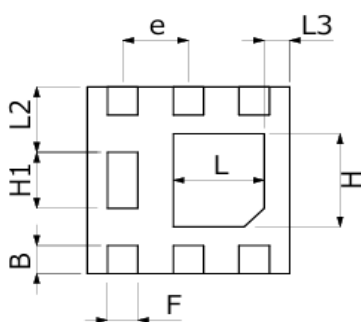
Side View



Side View



Bottom View



Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	0.700	0.750	0.800
B	0.250	0.300	0.350
C	0.153	0.203	0.253
D	1.900	2.000	2.100
E	1.900	2.000	2.100
e	0.600	0.650	0.700
F	0.250	0.300	0.350
H	0.900	1.000	1.100
H1	0.500	0.600	0.650
L	0.800	0.900	1.000
L2	0.600	0.700	0.800
L3	0.250	0.300	0.350

Form

- ❖ Tape & Reel Embossed Type: 3,000pcs / reel
- ❖ Factory PKG Code: DFN
- ❖ Tape Width: 12mm, Pitch: 8mm, Reel Size: 12inch

Important Notice

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