

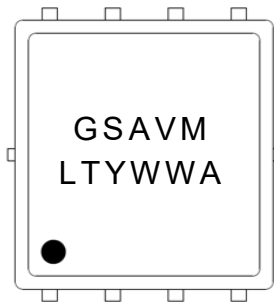
N-channel Power MOSFET:
30V, 3.1mohm, 56A

Product Summary

VDSS	VGSS	RDS(ON) TYP/MAX	ID MAX
30V	± 20V	3.1/4.4 mΩ@VGS=10V 5.3/8.3 mΩ@VGS=4.5V	56A

Marking Symbol Code

- ❖ Laser Marking Device Code: AVM



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

Form

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

Absolute Maximum Rating Ta=25°C

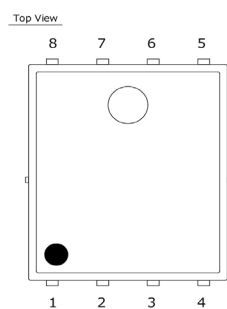
Parameter	Symbol	Rating	Unit
Drain to Source Voltage	VDS	30	V
Gate to Source Voltage	VGS	±20	V
Continuous Drain Current	IDM	56	A
		35	A
Pulsed Drain Current*1	IDM	110	A
Continuous Drain Current	IDSM	15.2	A
		12.1	A
Avalanche Current	IAS	21	A
Avalanche Energy	EAS	22	mJ
Power Dissipation	PD	26	W
		10	W
Power Dissipation*3	PDSM	4.9	W
		3.1	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55 to +150	°C

*1Pulse width limited by maximum junction temperature.

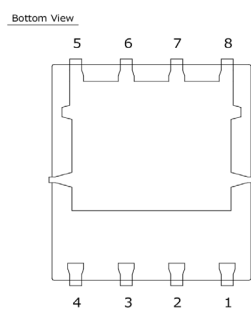
*2The value of R_{θJA} is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C.

*3The Power dissipation is based on R_{θJA} t ≤ 10s value.

Top View



Bottom View



1,2,3: Source
4: Gate
5,6,7,8: Drain

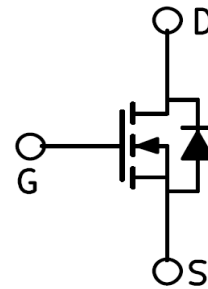
Features

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

Application

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

Equivalent circuit



Thermal Characteristics (Typical)

Parameter	Symbol	TYP	Unit
Junction-to Ambient (T _A =25°C)			
t ≤ 10s	R _{thJA} *2	20.4	°C/W
Steady-State		52.8	°C/W
Junction-to Case (T _C =25°C)			
Steady-State	R _{thJC}	3.7	°C/W

Electrical Characteristics (Tj=25degC)

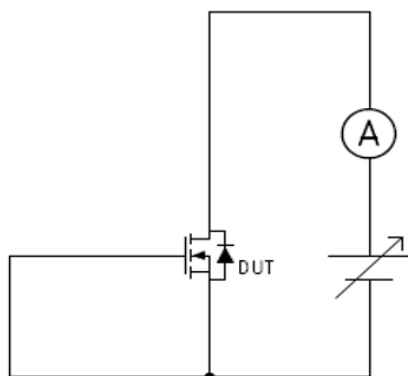
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	VDSS	ID=250μA, VGS=0V	30			V
Zero Gate Voltage Drain Current	IDSS	VDS=24V, VGS=0V			1	μA
Gate-Source Leakage Current	IGSS	VGS=±20V, VDS=0V			±100	nA
Gate-Source Threshold Voltage	Vth	VDS=VGS, ID=250μA	1.2	1.6	2.4	V
Drain-Source On-State Resistance	RDS(on)1	ID=13A, VGS=10V		3.1	4.4	mΩ
	RDS(on)2	ID=13A, VGS=4.5V		5.3	8.3	
Forward Transconductance	gFS	VGS=5V, ID=13A		74		S
Input Capacitance *1	Ciss	VDS=15V, VGS=0V, f=1MHz		1,072		pF
Output Capacitance *1	Coss			798		
Reverse Transfer Capacitance *1	Crss			42		
Gate Resistance *1	Rg	f=1MHz		2.0		Ω
Turn-On Delay Time *1 *2	td(on)	VDD=15V, VGS=10V, ID=13A		9.5		ns
Rise Time *1 *2	tr			5.1		
Turn-Off Delay Time *1 *2	td(off)	VDD=15V, VGS=10V, ID=13A		23.2		ns
Fall Time *1 *2	tf			7.8		
Total Gate Charge *1	Qg	VDD=15V, VGS=10V, ID=13A		19.5		nC
Gate-Source Charge *1	Qgs			3.4		
Gate-Drain Charge *1	Qgd			4.8		
Diode Forward Voltage	VSD	IS=13A, VGS=0V			1.2	V
Maximum Body Diode Continuous Current	IS				21.5	A
Body Diode Reverse Recovery Time *1	trr	IF=13A, di/dt=100A/μs		37		ns
Body Diode Reverse Recovery Charge *1	Qrr			39		nC

Note *1 Guaranteed by Design

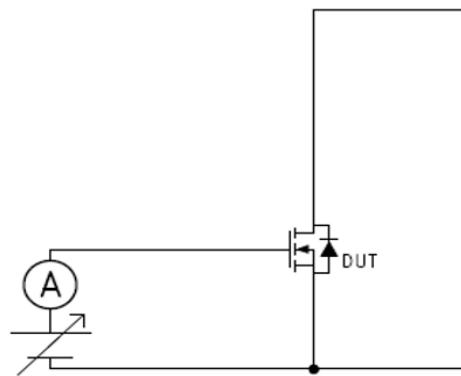
Note *2 Measurement Circuit for Switching Characteristics

Test circuits

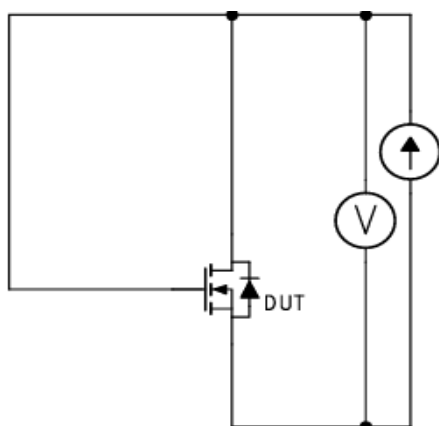
Test Circuit 1
VDSS/IDSS



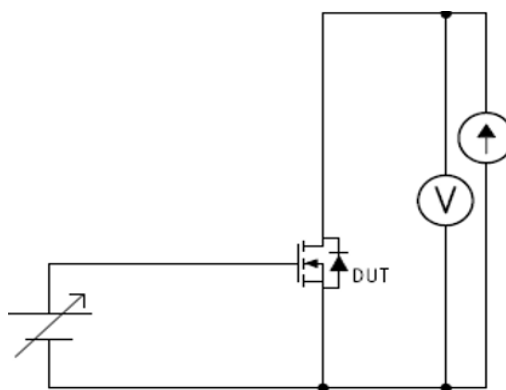
Test Circuit 2
IGSS



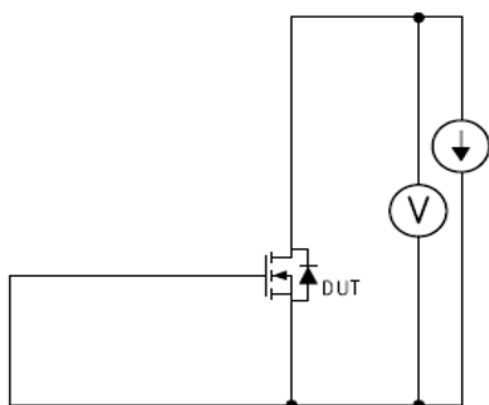
Test Circuit 3
Vth

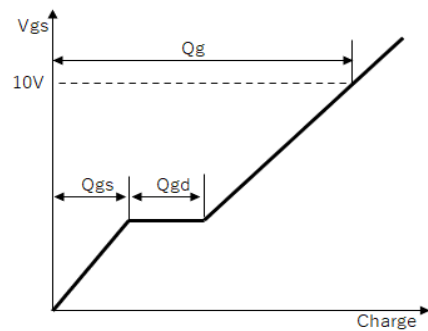
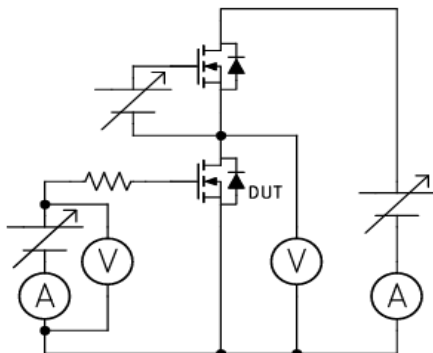
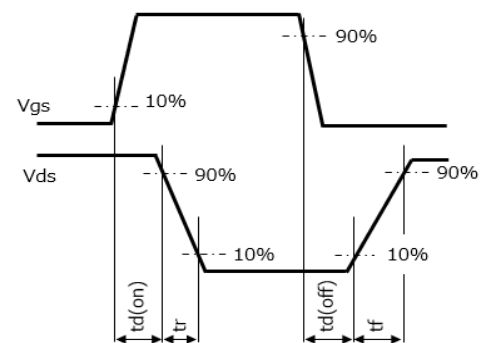
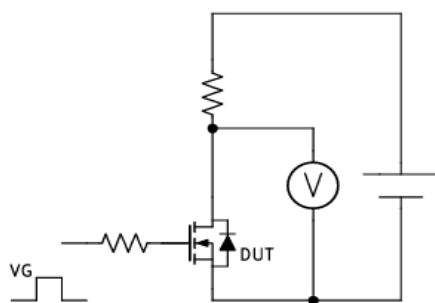
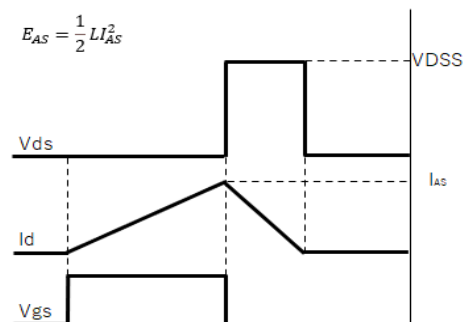
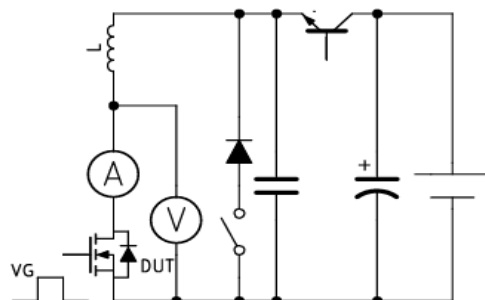
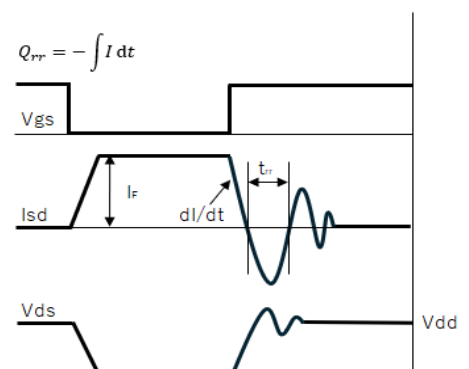
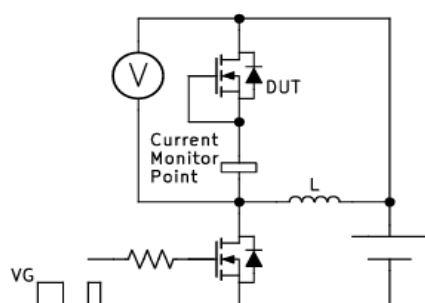


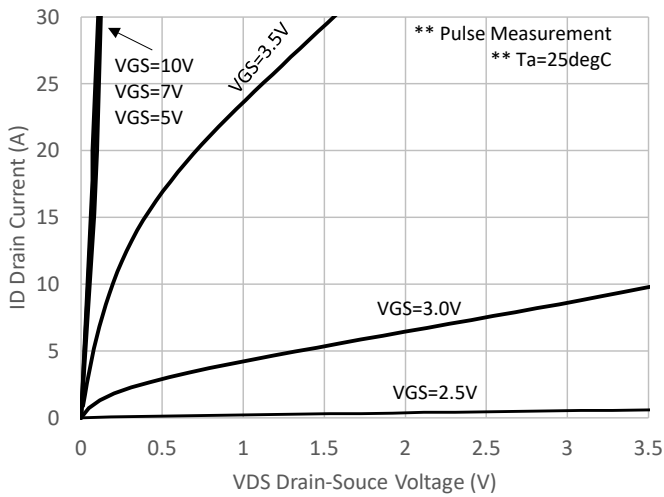
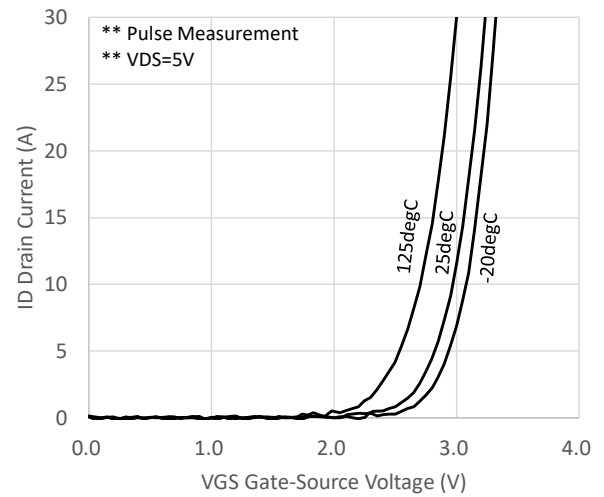
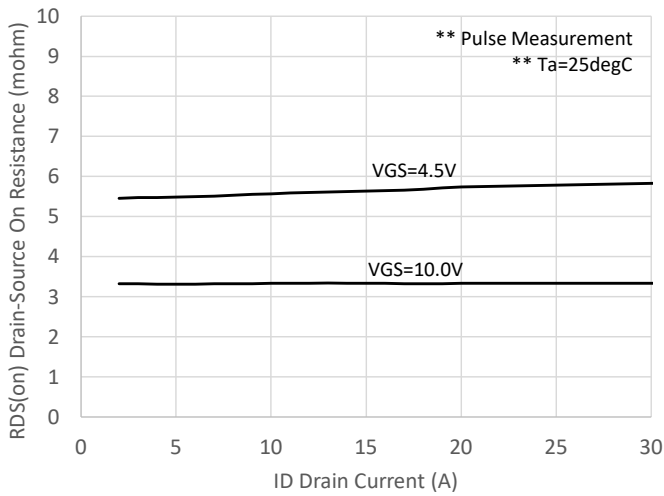
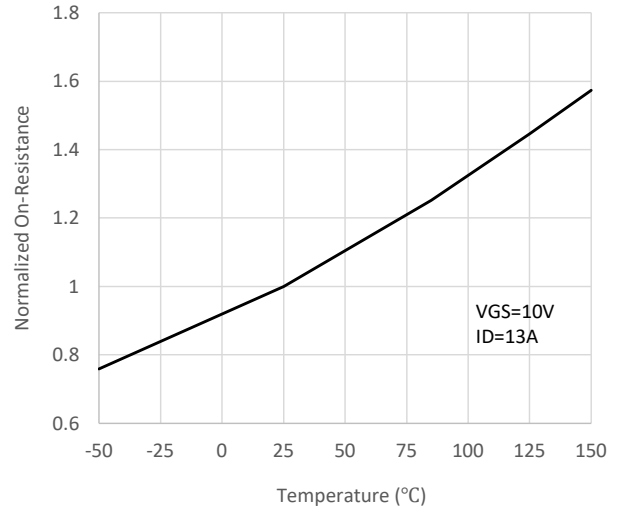
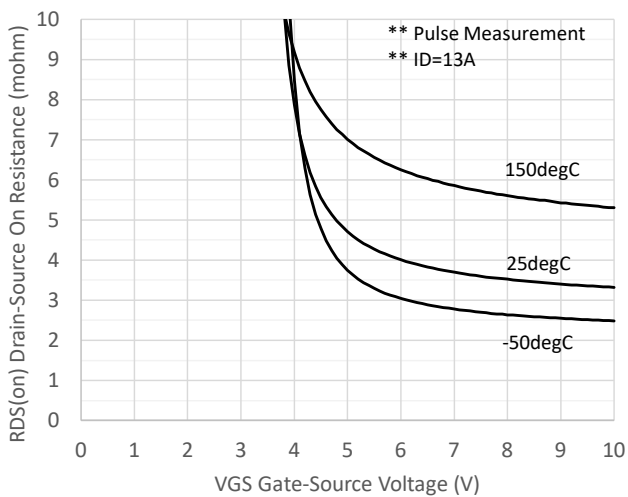
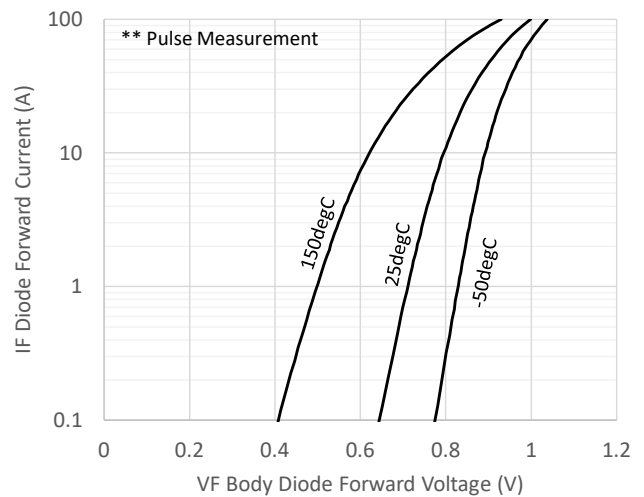
Test Circuit 4
RDS(on)

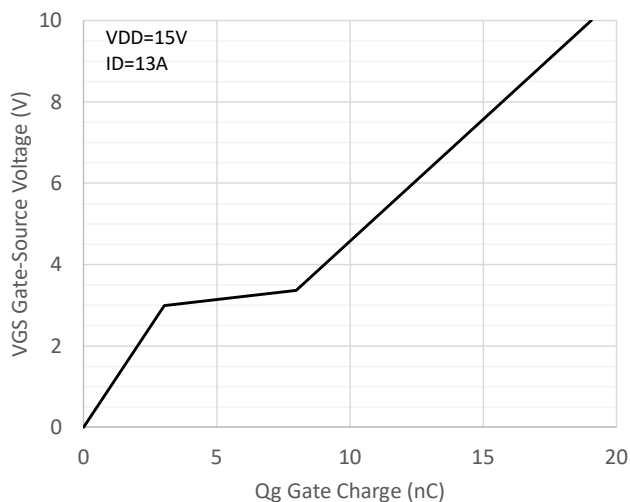
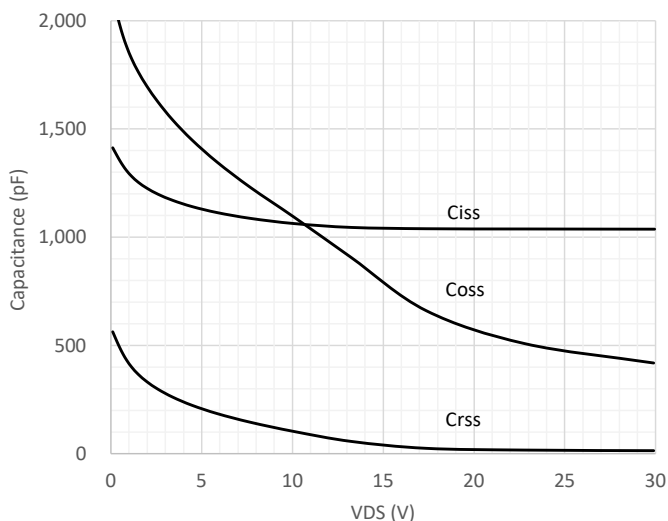
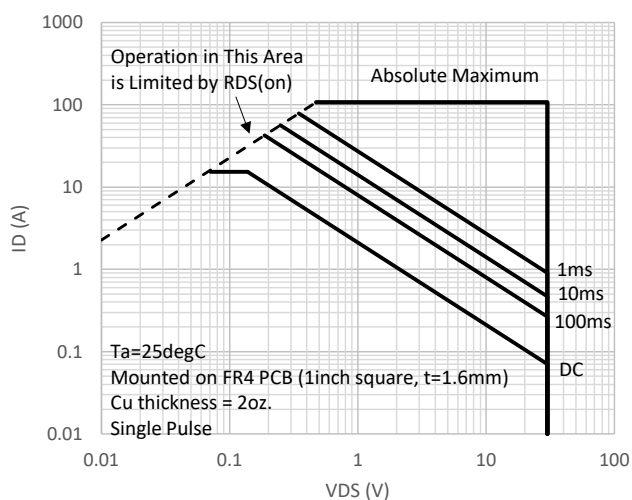
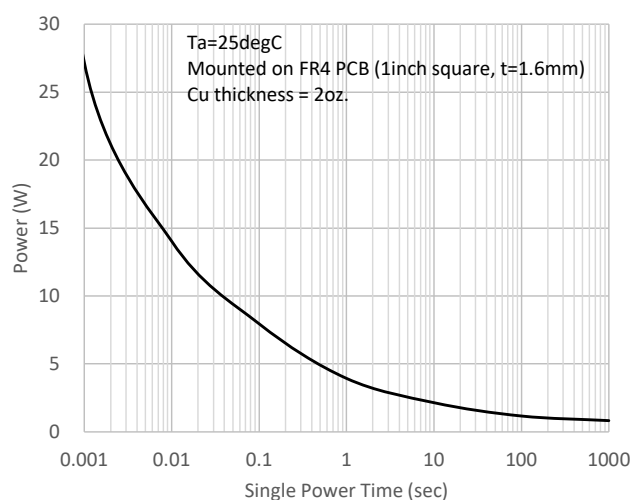
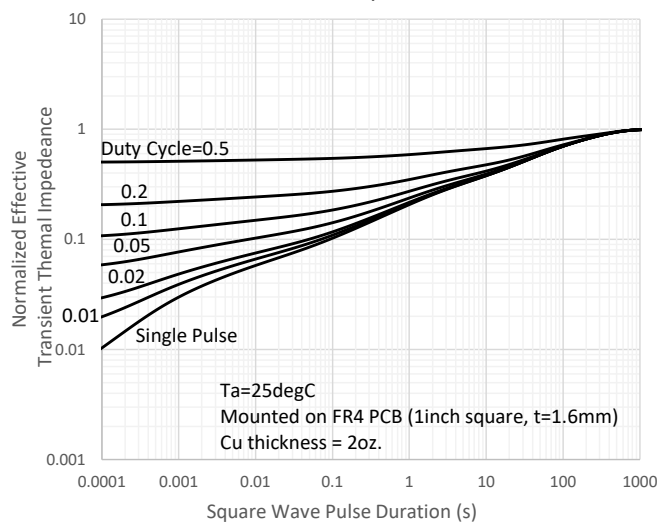
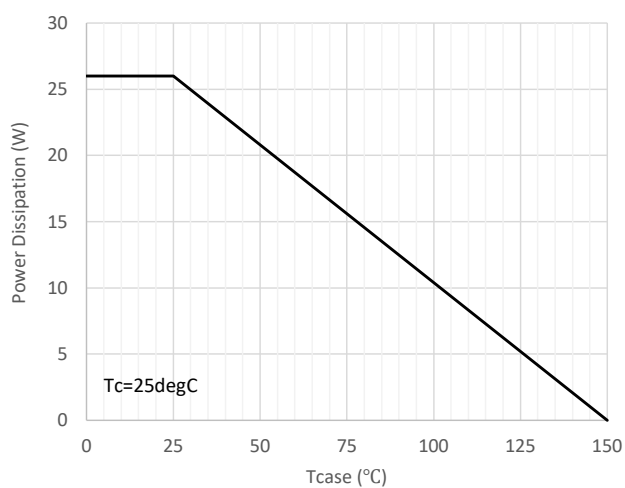


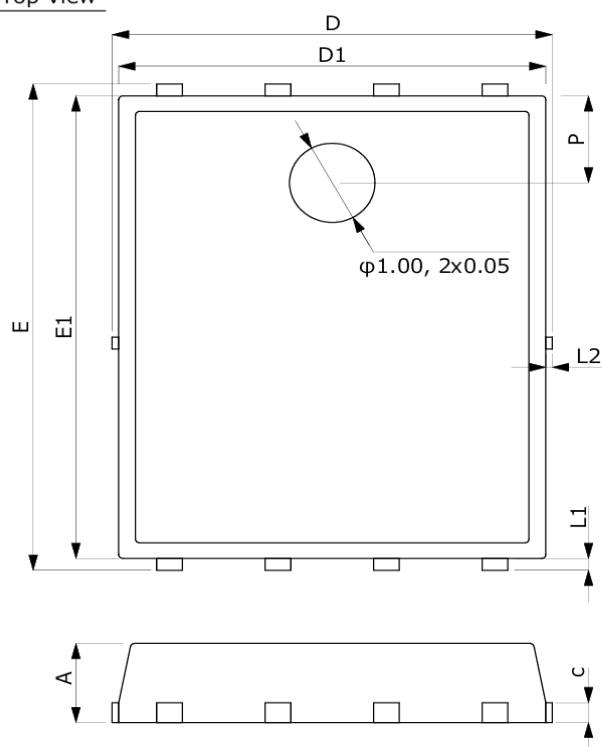
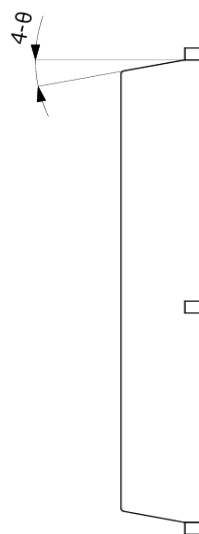
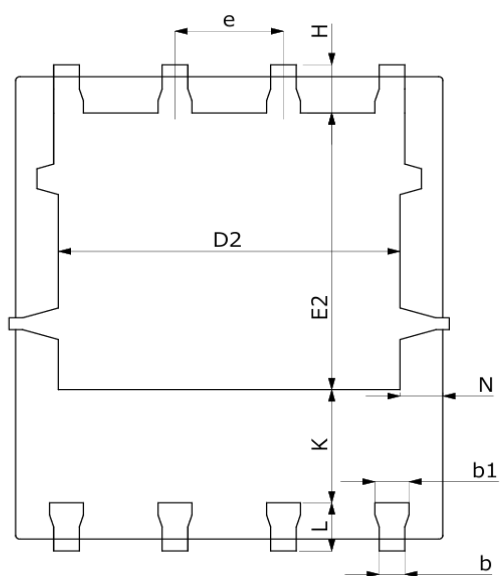
Test Circuit 5
VF



Test circuits
**Test Circuit 6
Qg**

**Test Circuit 7
Switching Tin**

**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


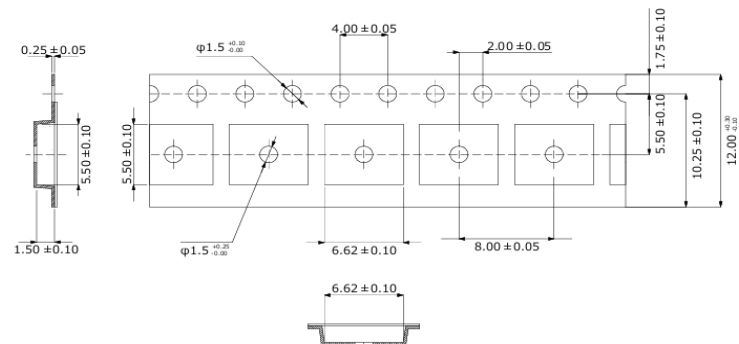
Package Outline Dimensions
Top View

Side View

Bottom View


Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	0.950	1.000	1.050
b	0.250	0.300	0.350
b1	0.300	0.400	0.500
c	0.200	0.250	0.300
D	5.15 BSC		
D1	4.900	5.000	5.100
D2	3.900	4.010	4.200
e	1.170	1.270	1.370
E	6.15 BSC		
E1	5.750	5.850	5.950
E2	3.350	3.500	3.650
H	0.510	0.610	0.710
K	1.100	1.350	1.500
L	0.510	0.610	0.710
L1	0.060	0.130	0.200
L2	-	-	0.120
N	0.400	0.500	0.600
P	0.950	1.100	1.250
θ	9	11	13

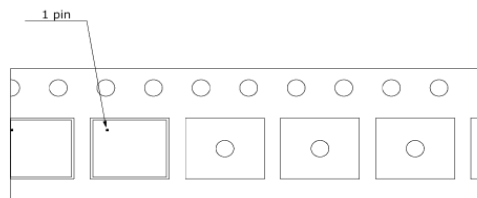
Form

- ❖ Tape & Reel Embossed Type: 5,000pcs / reel
- ❖ Factory PKG Code: PDFN
- ❖ Tape Width: 12mm, Pitch: 8mm, Reel Size: 12inch

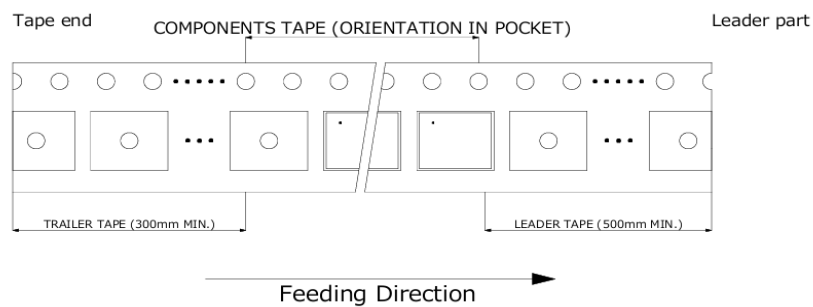
Tape size (mm)



Pin1 Direction



Tape end ~ Leader part (mm)



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