

N-channel Power MOSFET:
30V, 2.5mohm, 70A

Product Summary

VDSS	VGSS	RDS(ON) TYP/MAX	ID MAX
30V	± 20V	2.5/3.3 mΩ@VGS=10V 4.0/7.3 mΩ@VGS=4.5V	70A

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.

Marking Symbol Code

- ❖ Laser Marking Device Code: AEM

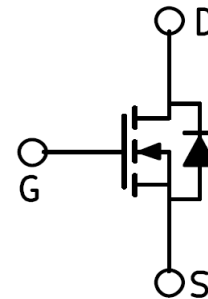


GS : Gostone (fixed)
AEM: Marking Device Code (fixed)
A: Factory Code
Y: Year Code
WW: Week Code
LT: LOT Code
o : Pin#1 Identifier

Form

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

Equivalent circuit



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	IDS	70	A
		44	A
Pulsed Drain Current*1	IDM	140	A
Continuous Drain Current	IDS	18	A
		15	A
Avalanche Current	IAS	24	A
Avalanche Energy	EAS	28.5	mJ
Power Dissipation	PD	33	W
		13	W
Power Dissipation*3	PDSM	5.0	W
		3.2	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55 to +150	°C

Thermal Characteristics (Typical)

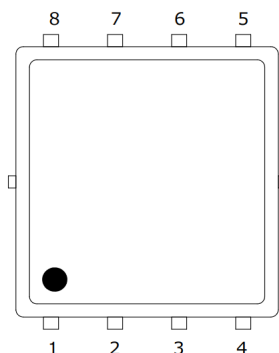
Parameter	Symbol	Rating	Unit
Junction-to Ambient (T _A =25°C)			
t ≤ 10s	R _{thJA} ⁻²	20	°C/W
Steady-State		50	°C/W
Junction-to Case (T _C =25°C)			
Steady-State	R _{thJC}	2.9	°C/W

*1Pulse width limited by maximum junction temperature.

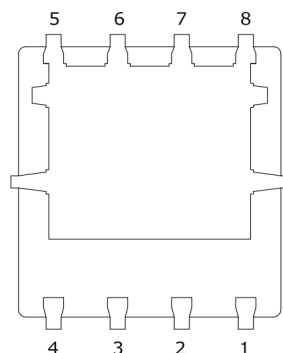
*2The value of RthJA is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with Ta=25°C.

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

Top View



Bottom View



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



Electrical Characteristics (Tj=25degC)

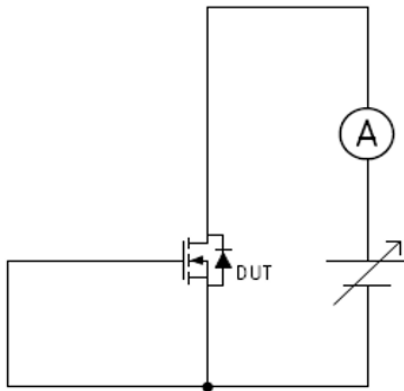
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	VDSS	ID=250μA, VGS=0V	30			V
Zero Gate Voltage Drain Current	IDSS	VDS=24V, VGS=0V			1	μA
Gate-Source Leakage Current	IGSS	VGS=±20V, VDS=0V			±100	nA
Gate-Source Threshold Voltage	Vth	VDS=VGS, ID=250μA	1.2	1.7	2.4	V
Drain-Source On-State Resistance	RDS(on)1 RDS(on)2	ID=13A, VGS=10V ID=13A, VGS=4.5V		2.5 4.0	3.3 7.3	mΩ
Forward Transconductance	gFS	VGS=5V, ID=13A		59		S
Input Capacitance *1	Ciss	VDS=15V, VGS=0V, f=1MHz		1,144		pF
Output Capacitance *1	Coss			900		
Reverse Transfer Capacitance *1	Crss			40		
Gate Resistance *1	Rg	f=1MHz		3.2		Ω
Turn-On Delay Time *1 *2	td(on)	VDD=15V, VGS=10V, ID=13A		7		ns
Rise Time *1 *2	tr			10		
Turn-Off Delay Time *1 *2	td(off)	VDD=15V, VGS=10V, ID=13A		31		ns
Fall Time *1 *2	tf			12		
Total Gate Charge *1	Qg	VDD=15V, VGS=10V, ID=13A		18.2		nC
Gate-Source Charge *1	Qgs			3.5		
Gate-Drain Charge *1	Qgd			3.1		
Diode Forward Voltage	VSD	IS=13A, VGS=0V			1.2	V
Maximum Body Diode Continuous Current	IS				26	A
Body Diode Reverse Recovery Time *1	trr	IF=13A, di/dt=100A/μs		19.0		ns
Body Diode Reverse Recovery Charge *1	Qrr			7.7		nC

Note *1 Guaranteed by Design

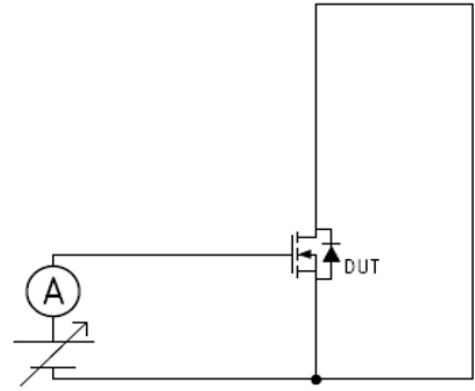
Note *2 Measurement Circuit for Switching Characteristics

Test circuits

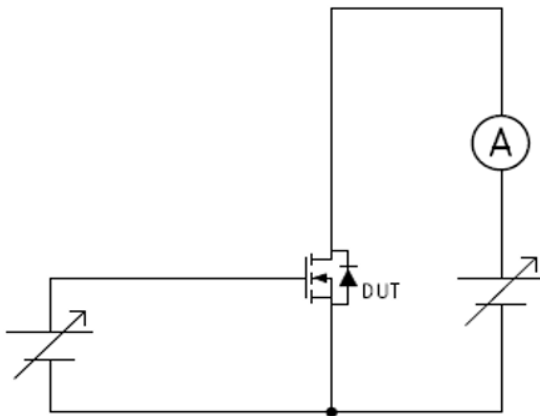
Test Circuit 1
VDSS/IDSS



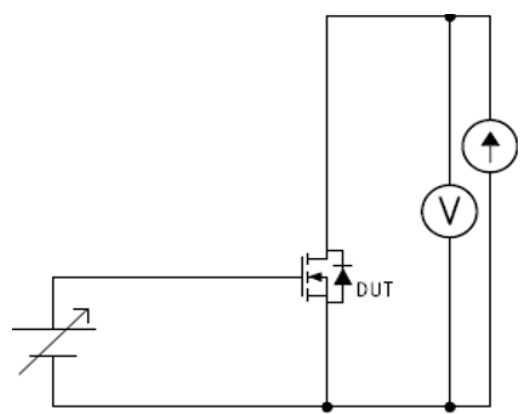
Test Circuit 2
IGSS



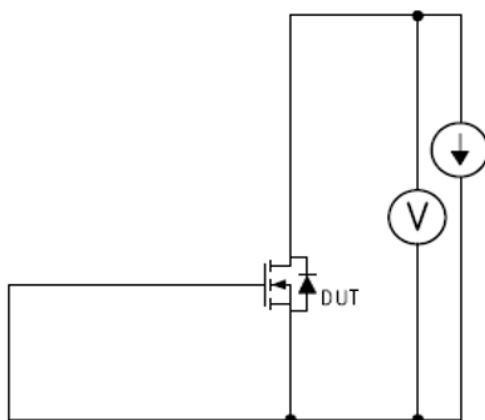
Test Circuit 3
Vth



Test Circuit 4
RDS(on)

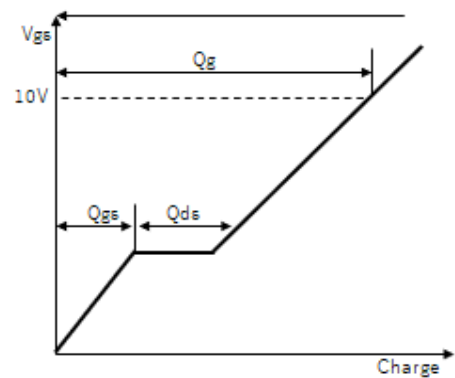
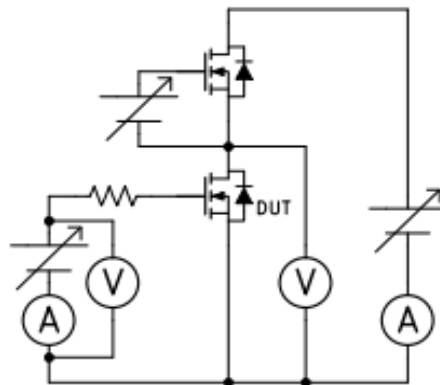


Test Circuit 5
VF

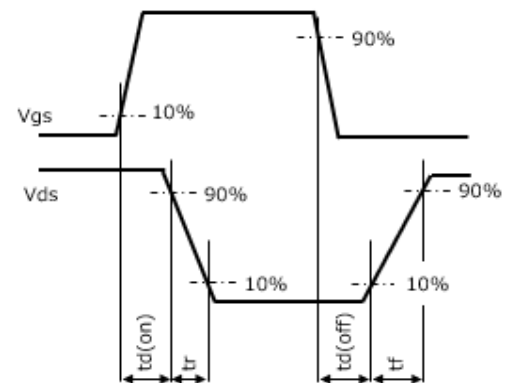
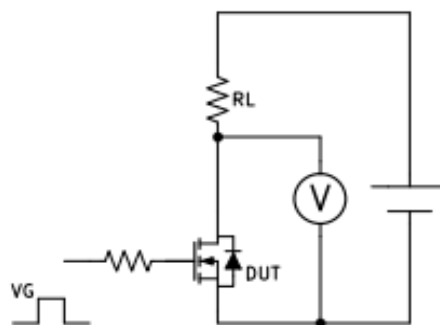


Test circuits

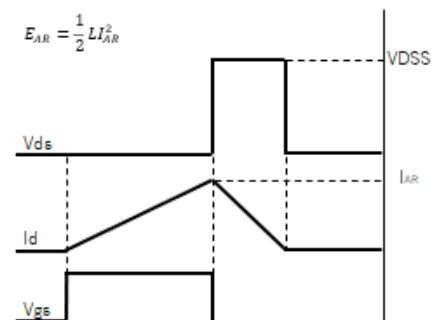
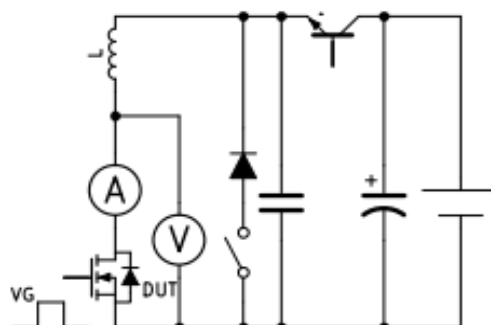
Test Circuit 6
Q_g



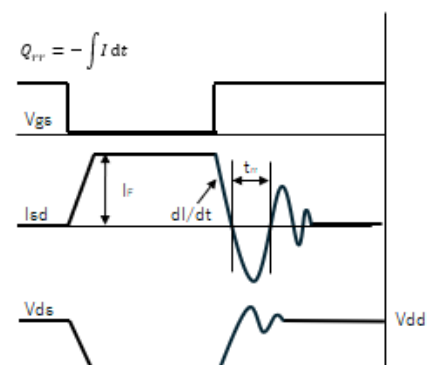
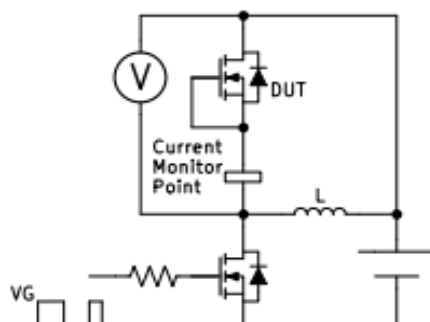
Test Circuit 7
Switching Time



Test Circuit 8
IAS

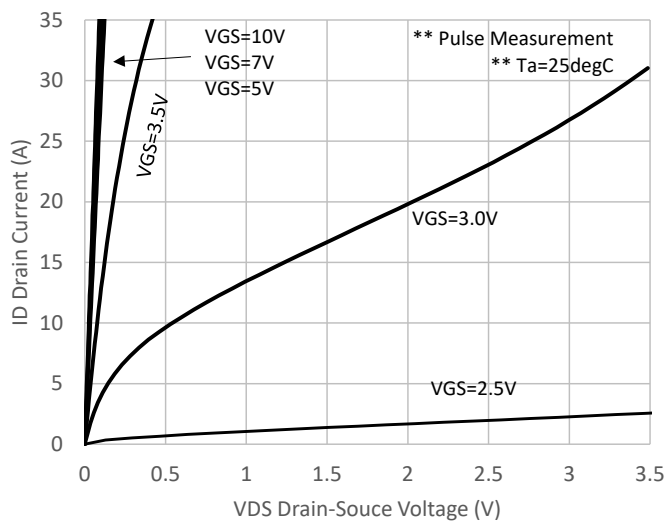


Test Circuit 9
trr/Qrr

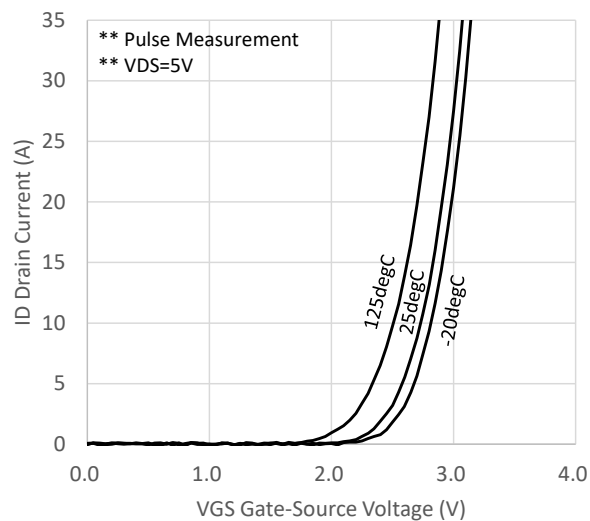


Technical data

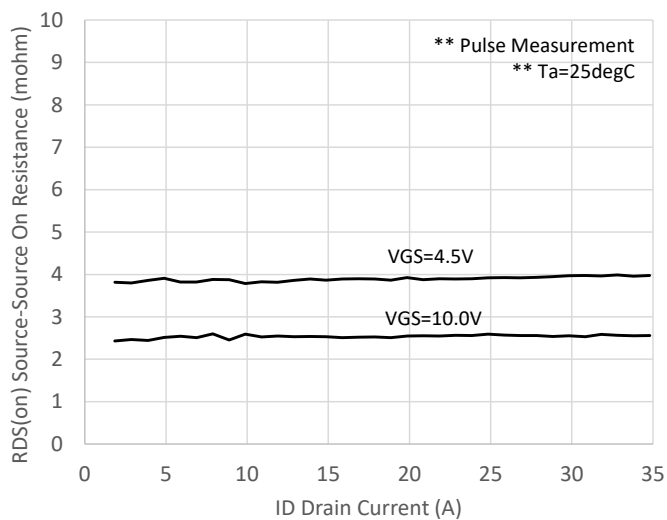
ID to VDS



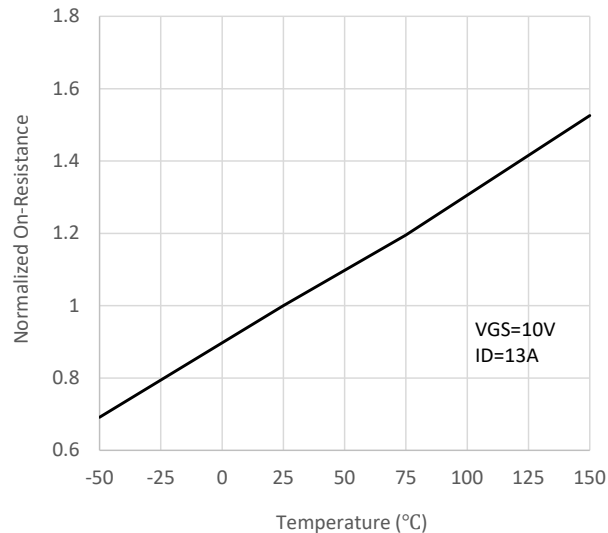
ID to VGS



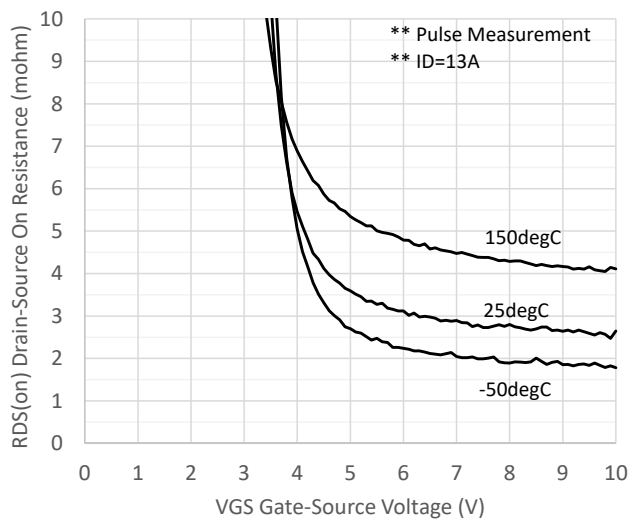
RDS(on) to ID



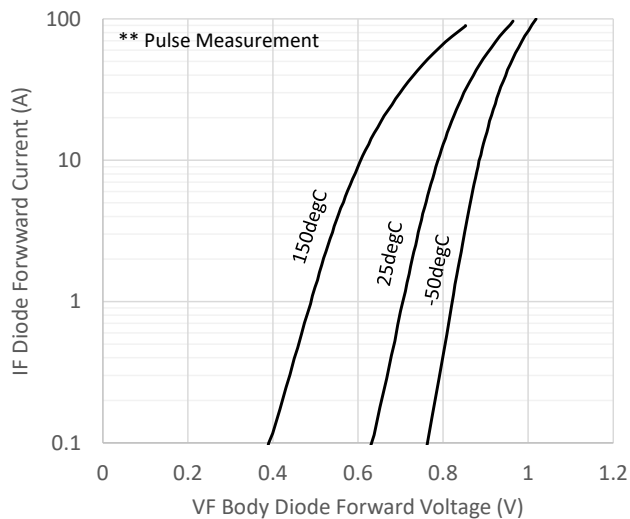
On-Resistance vs Junction Temperature



RDS(on) to VGS

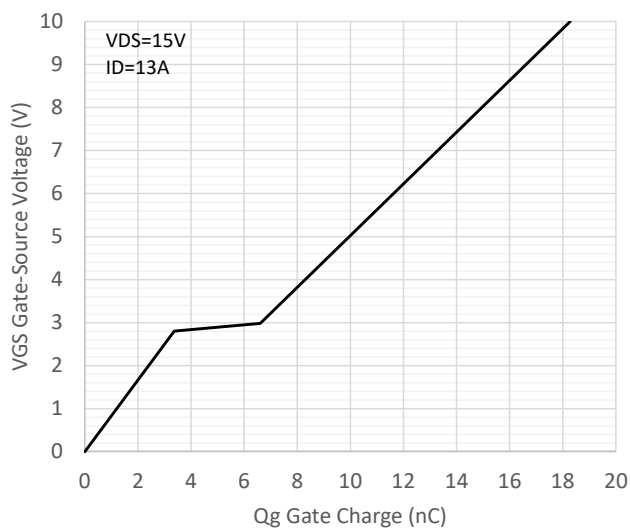


IF to VF

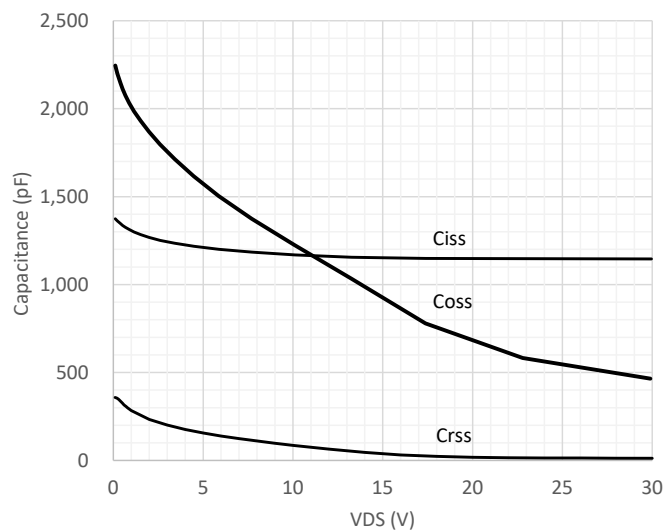


Technical data

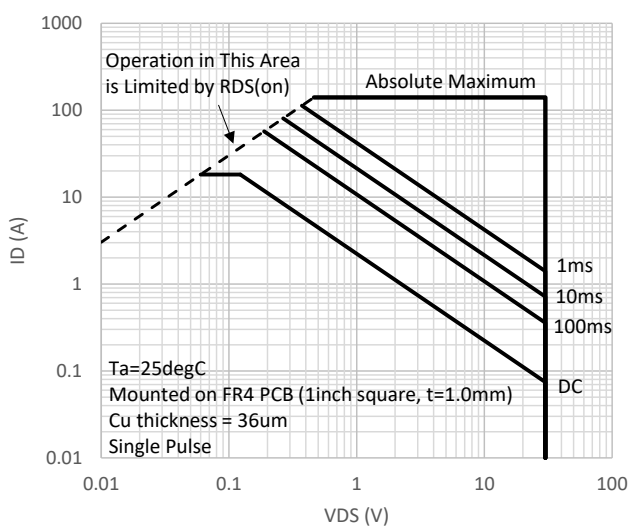
Gate-Charge Characteristics



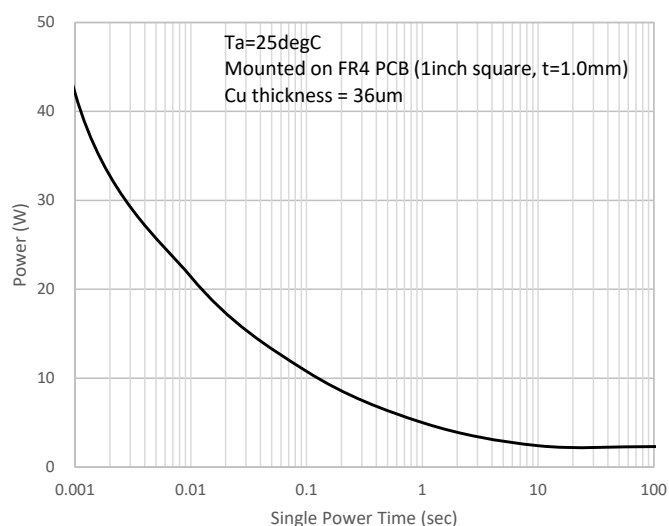
Capacitance Characteristic



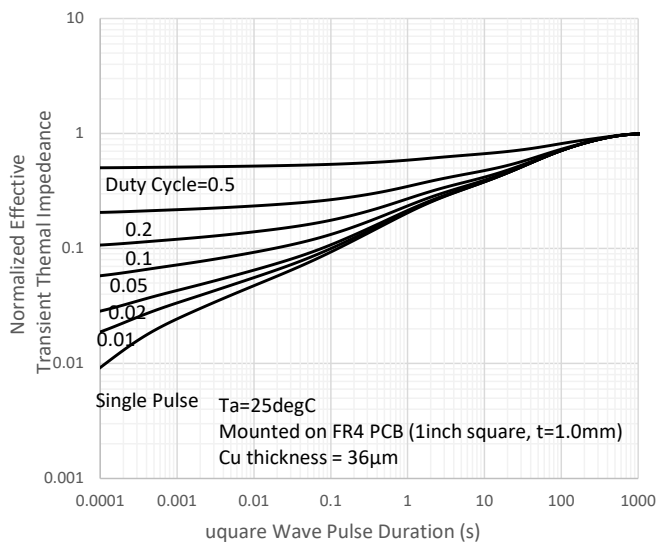
SOA



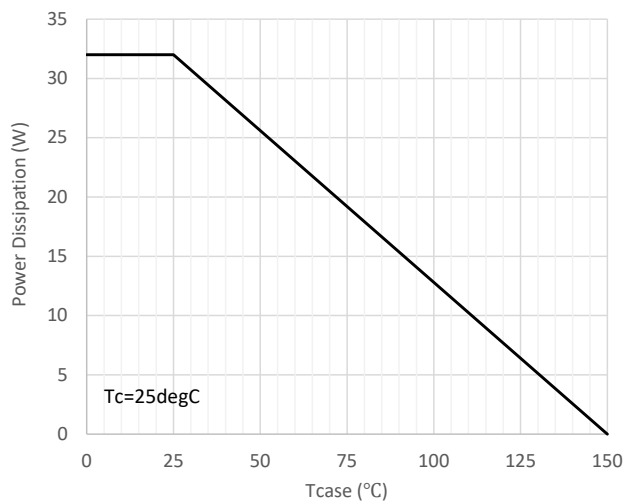
Single Pulse Maximum Power Dissipation



Thermal Response

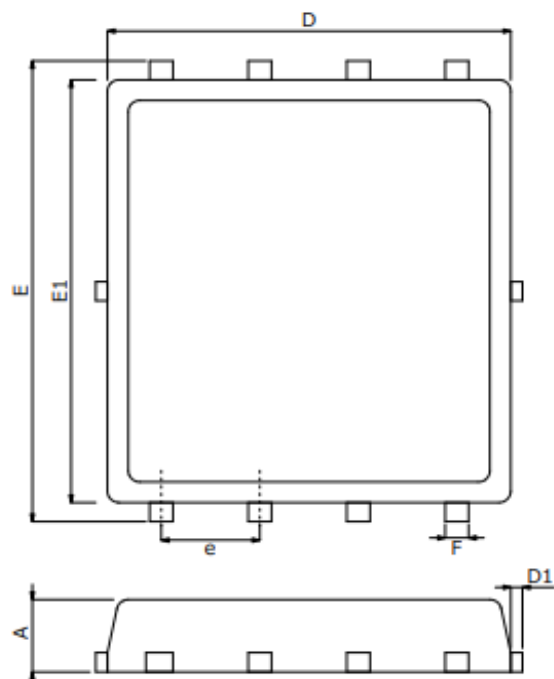


Power Derating



Package Outline Dimensions

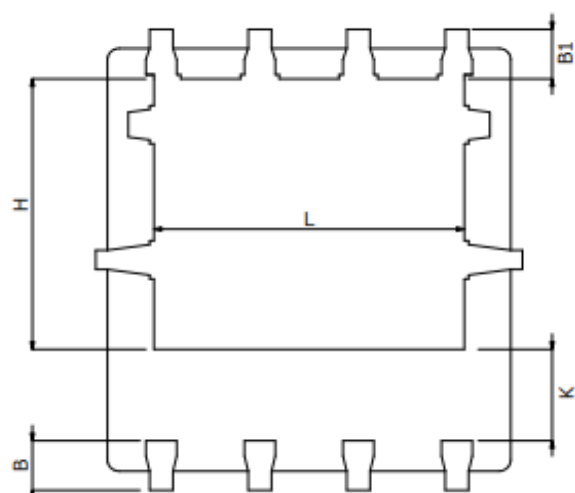
Top View



Side View



Bottom View



Symbol	Dimensions In Millimeters		
	MIN	NOM	MAX
A	0.900	0.950	1.000
B	0.480	0.580	0.680
B1	0.550	0.650	0.750
C	0.200	0.254	0.300
D	5.100	5.200	5.300
D1	-	-	0.150
E	5.900	6.050	6.200
E1	5.400	5.550	5.700
e	1.220	1.270	1.320
F	0.250	0.300	0.350
H	3.270	3.470	3.670
L	3.800	4.000	4.200
K	1.200	-	-

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

[illegible]

A diagram of a 16-pin connector. It shows a horizontal row of 16 circular pins. Below the pins, there are 16 rectangular slots. The first two slots are empty, and the next three slots each contain a small circle. A dimension line labeled "1 pin" points to the width of one pin.

Tape end

COMPONENTS TAPE (ORIENTATION IN POCKET)

Leader part

TRAILER TAPE (300mm MIN.)

LEADER TAPE (500mm MIN.)

Feeding Direction

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