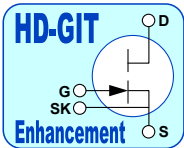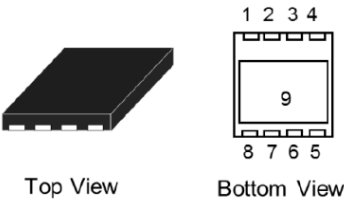# Panasonic

600V/140mΩ GaN Power Transistor

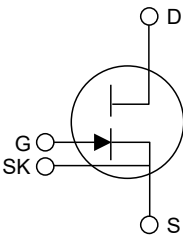# PGA26E19BA Product Overview

Overview

Panasonic's GaN power transistors offer superior device performances enabling higher power conversion efficiency and higher power density of power electronic systems than those by conventional Si-based power devices.

Features

– Crystal growth of GaN on 6-inch silicon substrate.
– 600V enhancement mode power switch Normally-Off operation
  with single GaN device by Panasonic's proprietary
  GIT: Gate Injection Transistor technology.
– Extremely high-speed switching characteristics.
– Current Collapse Free 600V and more by Panasonic's proprietary
  HD-GIT: Hybrid-Drain-embedded GIT
– Zero recovery loss characteristics.

Applications

– Power supply for AC-DC (PFC, Isolated DC-DC)
– Battery charger system
– Photovoltaic power converter, Motor inverter

Drain	1,2,3,4
Source	5,6,9
Kelvin Source	7
Gate	8

Absolute Maximum Ratings (Tj=25°C, unless otherwise specified)

Item	Symbol	Ratings	Unit
Drain-source voltage(DC)	VDSS	600	V
Drain-source voltage(pulse)	VDSP	750	V
Gate current(DC)	IG	19	mA
Drain current (DC) (Tc=25°C)	ID	15	A
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 to +150	°C

Note）All conditions should be within 150°C Tj.

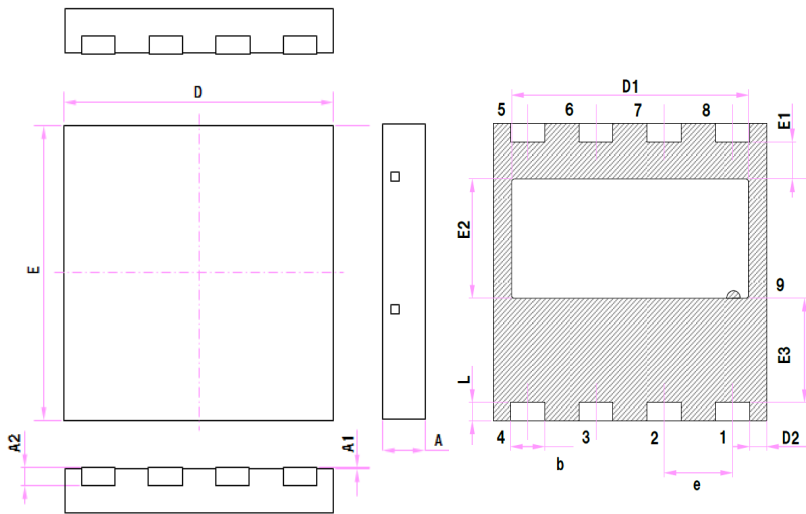## Thermal Characteristics (Typical values, unless otherwise specified)

Item	Symbol	Ratings	Unit
Thermal resistance (junction to case)	Rth(j-c)	max 1.5	°C/W
Thermal resistance (junction to ambient)	Rth(j-a)	max 46	°C/W
Power dissipation (Tc=25°C)	PD	83	W

Electrical Characteristics (Typical values at Tj=25°C, unless otherwise specified)

Item	Symbol	Condition	Value	Unit
Drain cut-off current	IDSS	VDS=600V, VGS=0V, Tj=25°C	max39	µA
		VDS=600V, VGS=0V, Tj=150°C	39	µA
Gate-source leakage current	IGSS	VGS= -3V, VDS=0V	-1	µA
Gate threshold voltage	VTH	VDS=10V, IDS=0.9mA	1.2	V
Drain-source on-state resistance	RDS(on)	IGS=9.2mA, IDS=5A, Tj=25°C	140	mΩ
		IGS=9.2mA, IDS=5A, Tj=150°C	290	mΩ
Gate resistance	RG	f=100 MHz, open drain	0.8	Ω
Input capacitance	Ciss	VDS=400V, VGS=0V, f=1MHz	160	pF
Output capacitance	Coss		28	pF
Reverse transfer capacitance	Crss		0.2	pF
Effective output capacitance (energy related)	Co(er)	VDS=0V to 480V	33	pF
Effective output capacitance (time related)	Co(tr)		37	pF
Gate charge	Qg	VDD=400V, IDS=5A	2.0	nC
Gate-source charge	Qgs		0.3	nC
Gate-drain charge	Qgd		1.0	nC
Gate plateau voltage	Vplateau	VDD=400V, IDS=5A	1.8	V
Source-drain forward voltage	VSD	VGS=0V,ISD=5A	2.6	V
Reverse recovery charge	Qrr	VDS=400V, ISD=5A	0	nC
Output charge	Qoss		17	nC

Package Outline

Unit: mm

SYMBOL	DIMENSION		
	MIN	NOM	MAX
A	1.15	1.25	1.35
A1	0.00	0.02	0.05
A2	0.40	0.50	0.60
b	0.90	1.00	1.10
D	7.90	8.00	8.10
D1	6.84	6.94	7.04
D2	0.40	0.50	0.60
E	7.90	8.00	8.10
E1	0.90	1.00	1.10
E2	3.10	3.20	3.30
E3	2.70	2.80	2.90
e	2.00 B.S.C.		
L	0.40	0.50	0.60

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