

P9B30HP2F

Power MOSFETs
300V, 9A, N-channel

Feature

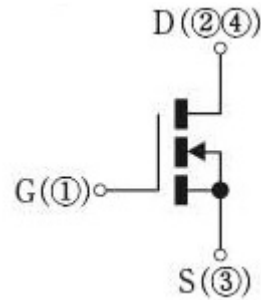
- N-channel
- SMD
- High Voltage
- High Speed
- Low Capacitance
- High Avalanche Durability, High di/dt Durability
- Pb free terminal
- RoHS:Yes

OUTLINE

Package (House Name): FB
Package (JEDEC Code): TO-252AA



Equivalent circuit



Absolute Maximum Ratings (unless otherwise specified : Tc=25°C)

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	T _{stg}		-55 to 150	°C
Channel temperature	T _{ch}		-55 to 150	°C
Drain-source voltage	V _{DSS}		300	V
Gate-source voltage	V _{GSS}		±30	V
Continuous drain current(DC)	I _D		9	A
Continuous drain current(Peak)	I _{DP}	Pulse width 10μs, duty=1/100	36	A
Continuous source current(DC)	I _S		9	A
Total power dissipation	P _T		54	W
Repetitive avalanche current	I _{AR}	Starting T _{ch} =25°C T _{ch} ≤150°C	9	A
Single avalanche energy	E _{AS}	Starting T _{ch} =25°C T _{ch} ≤150°C	45	mJ
Repetitive avalanche energy	E _{AR}	Starting T _{ch} =25°C T _{ch} ≤150°C	4.5	mJ
Drain-source diode di/dt strength	di/dt	I _S =9A, T _c =25°C	350	A/μs

* :See the original Specifications

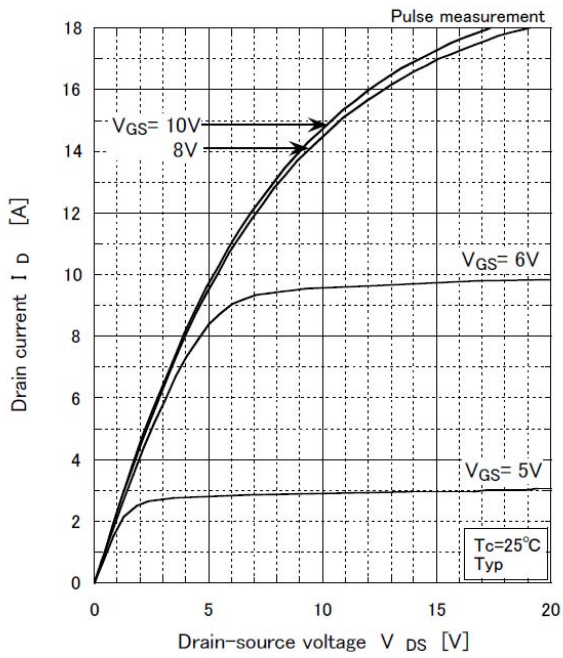
Electrical Characteristics (unless otherwise specified : Tc=25°C)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	300			V
Zero gate voltage drain current	I_{DSS}	VDS=300V, VGS=0V			100	μA
Gate-source leakage current	I_{GSS}	VGS=±25V, VDS=0V			±10	μA
Forward transconductance	g_{fs}	ID=4.5A, VDS=10V	3	6		S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=4.5A, VGS=10V		0.44	0.55	Ω
Gate threshold voltage	V_{th}	ID=1mA, VDS=10V	2		4.5	V
Source-drain diode forward voltage	V_{SD}	IS=4.5A, VGS=0V			1.5	V
Thermal resistance	$R_{th(j-c)}$	Junction to case, with heatsink			2.31	°C/W
Total gate charge	Q_g	VDD=200V, VGS=10V, ID=9A		14		nC
Input capacitance	C_{iss}	VDS=50V, VGS=0V, f=1MHz		402		pF
Reverse transfer capacitance	C_{rss}	VDS=50V, VGS=0V, f=1MHz		6.3		pF
Output capacitance	C_{oss}	VDS=50V, VGS=0V, f=1MHz		62		pF
Turn-on delay time	$t_{d(on)}$	ID=4.5A, RL=33.3Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		13		ns
Rise time	t_r	ID=4.5A, RL=33.3Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		12		ns
Turn-off delay time	$t_{d(off)}$	ID=4.5A, RL=33.3Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		43		ns
Fall time	t_f	ID=4.5A, RL=33.3Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		20		ns
Diode reverse recovery time	t_{rr}	IF=9A, di/dt=100A/μs		72		ns

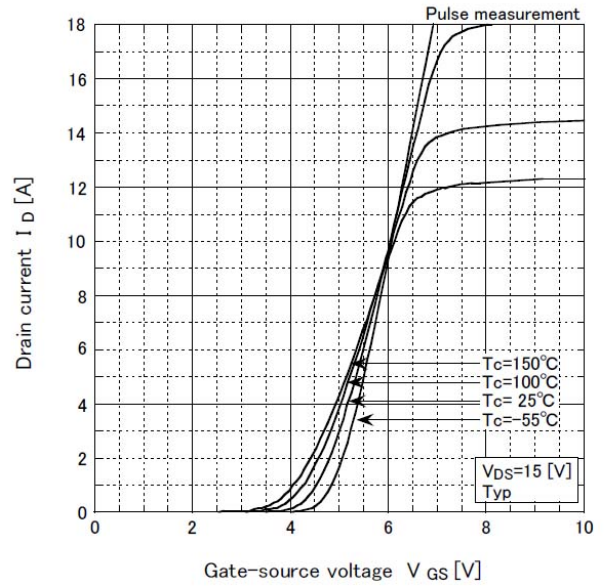
※ :See the original Specifications

CHARACTERISTIC DIAGRAMS

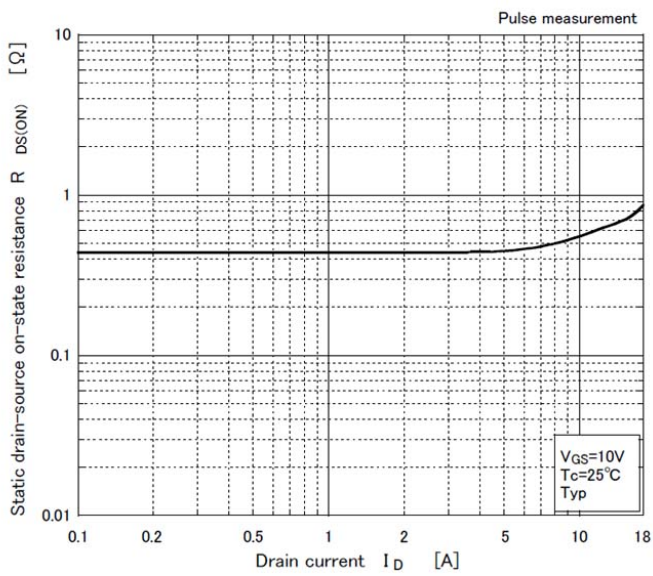
Typical output characteristics



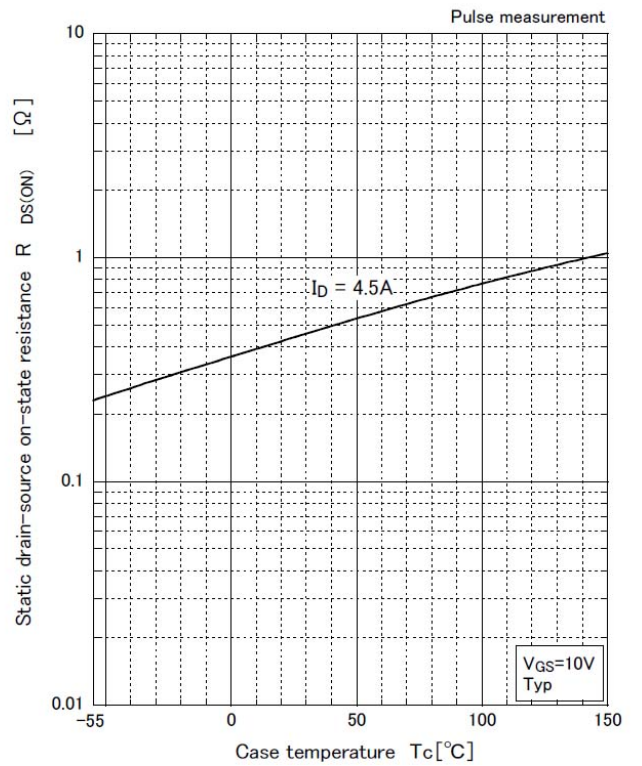
Transfer characteristics

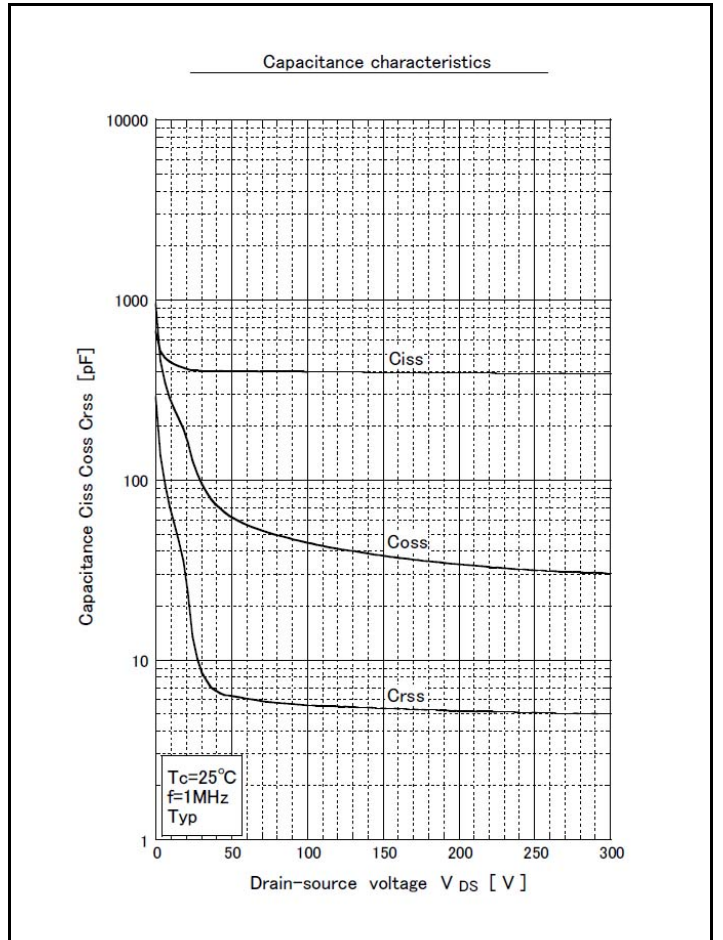
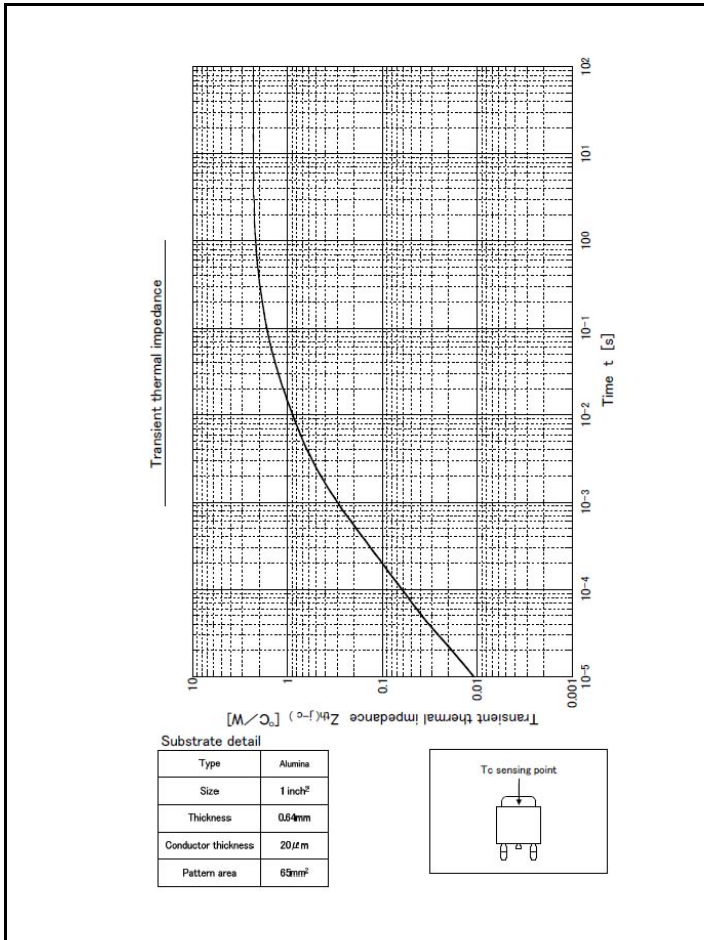
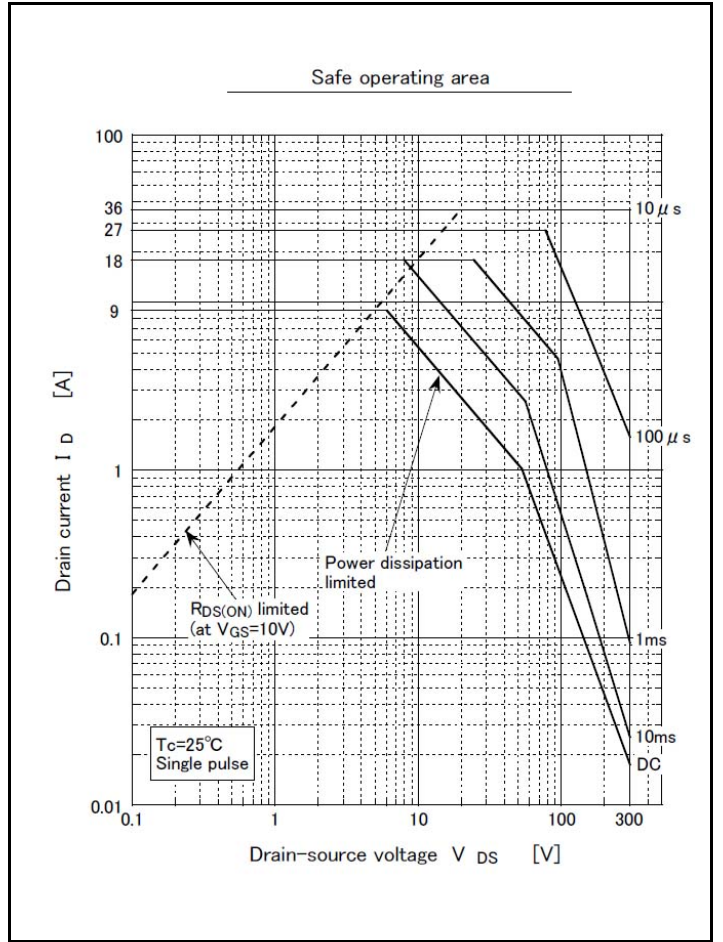
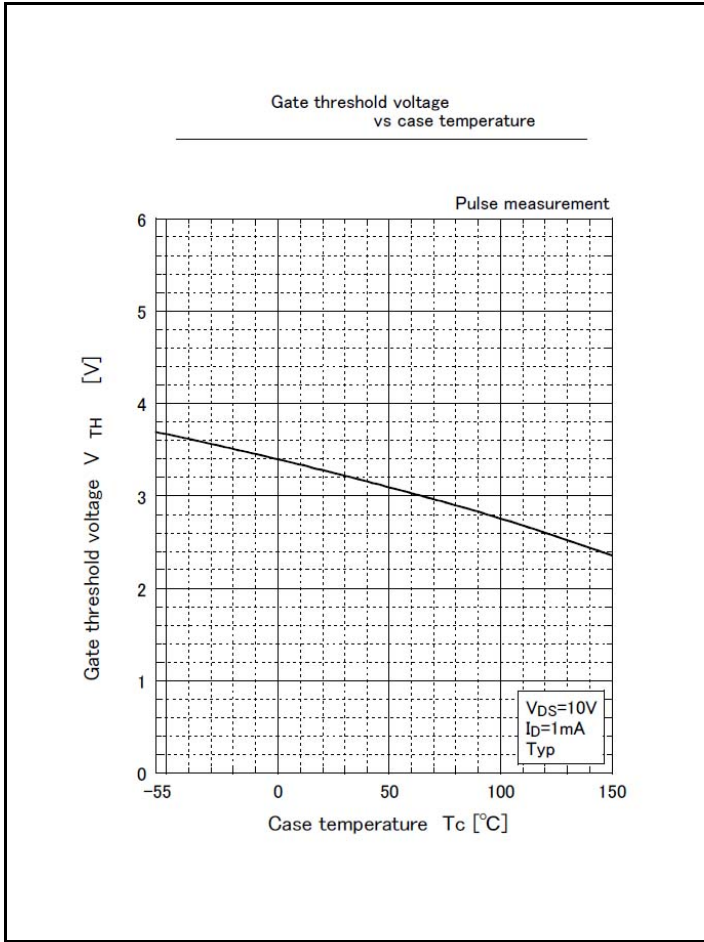


Static drain-source on-state resistance vs drain current

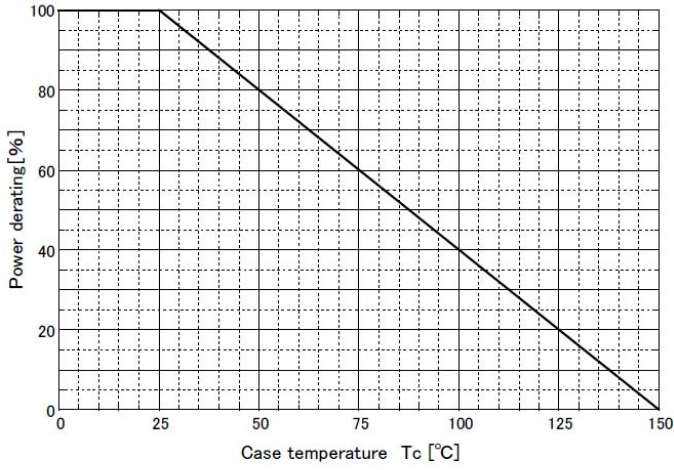


Static drain-source on-state resistance vs case temperature

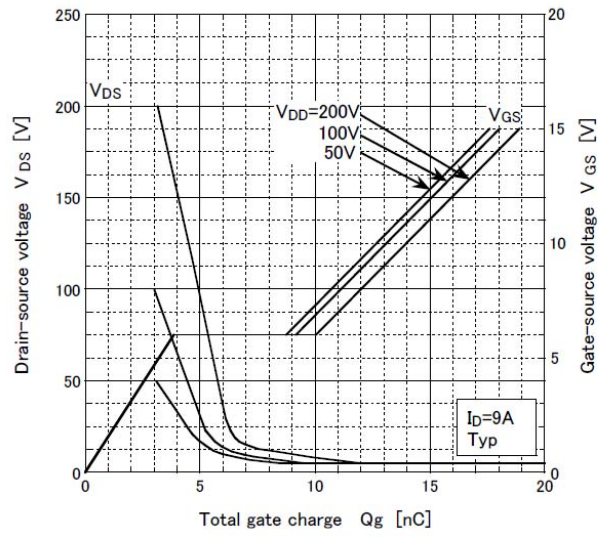




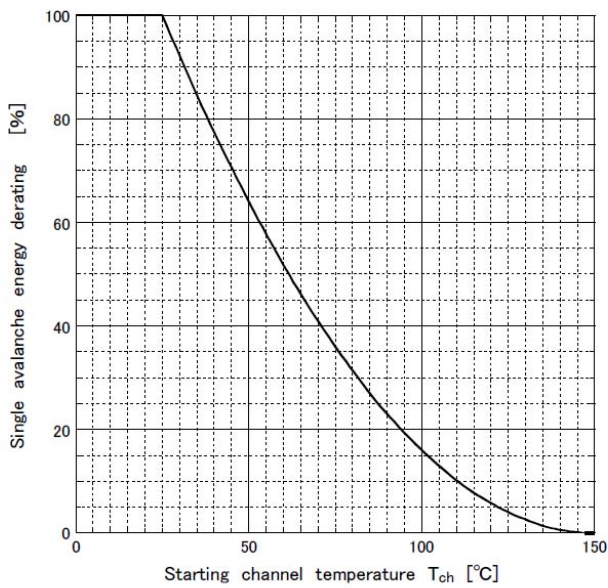
Power derating - case temperature



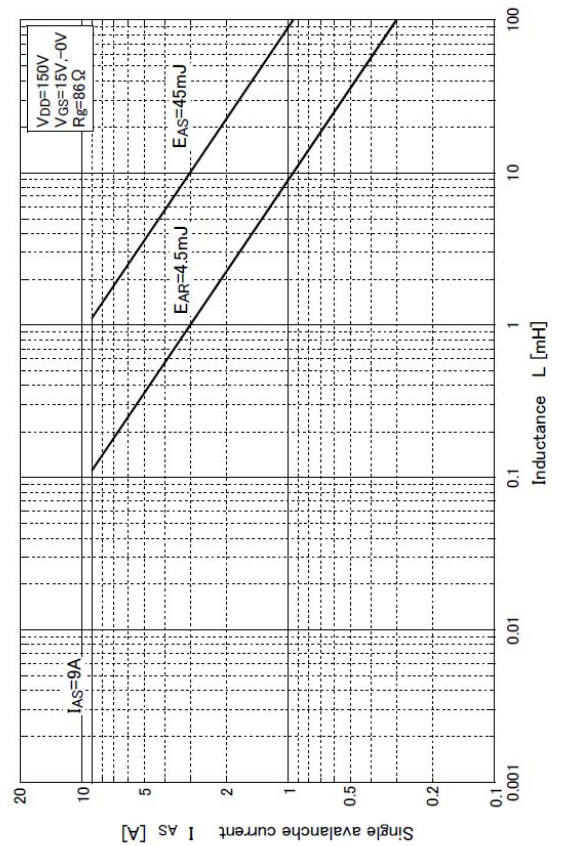
Gate charge characteristics



Single avalanche energy derating vs channel temperature

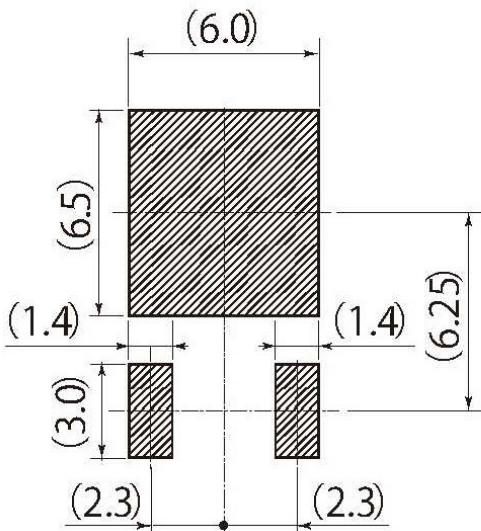
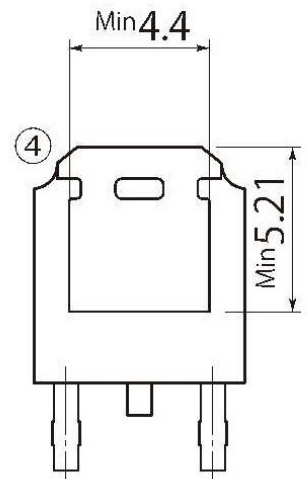
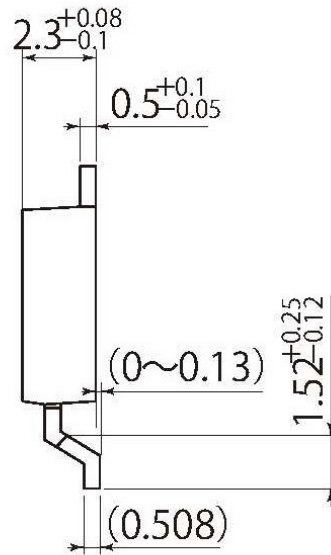
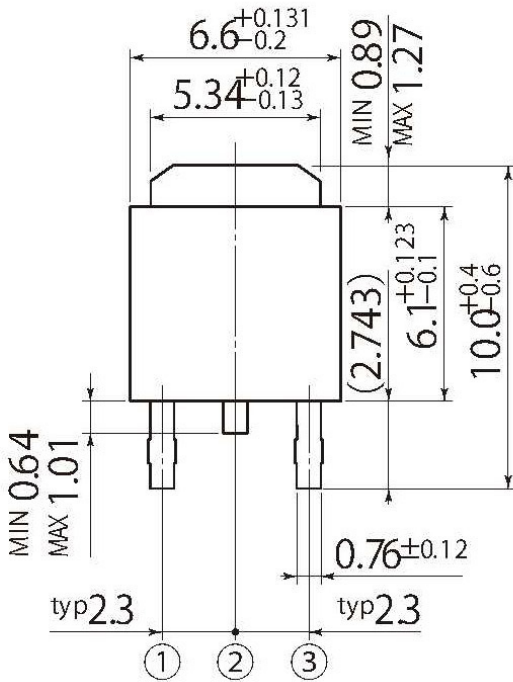


Single avalanche current vs inductive load



G2

JEDEC Code	TO-252AA
JEITA Code	-
House Name	FB



Referential Soldering Pad

• Optimize soldering pad to the board design and soldering condition.

Notes

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