

P8B10SBK

Power MOSFETs
100V, 8A, N-channel

Feature

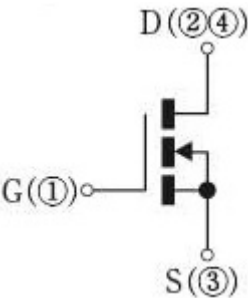
- N-channel
- SMD
- Low Ron
- 4.5V Gate Drive
- Low Capacitance
- Based on AEC-Q101
- Halogen free
- Pb free terminal
- RoHS:Yes

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	Tstg		-55 to 175	°C
Channel tempertature	Tch		-55 to 175	°C
Drain-source voltage	V _{DSS}		100	V
Gate-source voltage	V _{GSS}		±20	V
Continuous drain current(DC)	I _D		8	A
Continuous drain current(Peak)	I _{DP}	Pulse width 10μs, duty=1/100	24	A
Continuous source current(DC)	I _S		8	A
Total power dissipation	P _T	With heatsink※	23	W
Single avalanche current	I _{AS}	Starting Tch=25°C Tch≤150°C	8	A
Single avalanche energy	E _{AS}	Starting Tch=25°C Tch≤150°C	6.9	mJ

※ :See the original Specifications

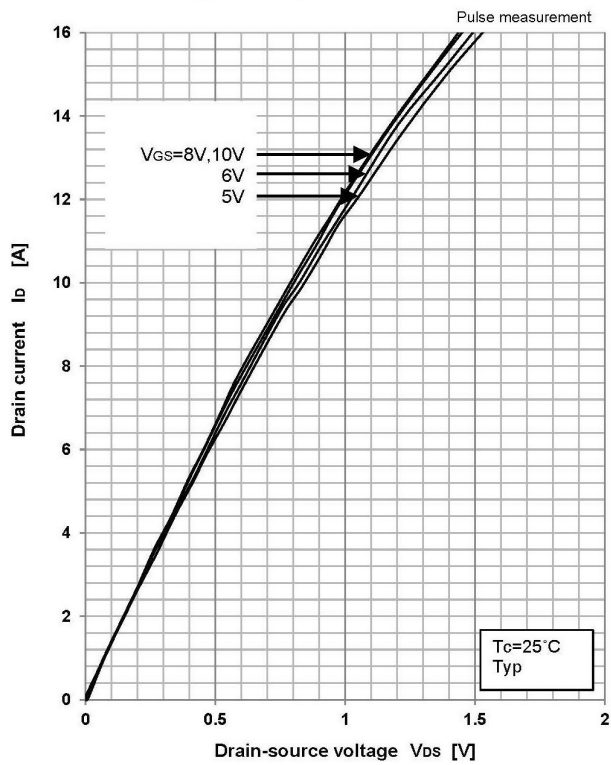
Electrical Characteristics (unless otherwise specified : Tc=25°C)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	100			V
Zero gate voltage drain current	I_{DSS}	VDS=100V, VGS=0V			1	μA
Gate-source leakage current	I_{GSS}	VGS=±20V, VDS=0V			±10	μA
Forward transconductance	g_{fs}	ID=4A, VDS=10V	4	8		S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=4A, VGS=10V		0.075	0.094	Ω
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=4A, VGS=4.5V		0.081	0.108	Ω
Gate threshold voltage	V_{th}	ID=1mA, VDS=10V	1.5	2	2.5	V
Source-drain diode forward voltage	V_{SD}	IS=8A, VGS=0V			1.5	V
Thermal resistance	$R_{th(j-c)}$	Junction to case, With heatsink ※			6.28	°C/W
Total gate charge	Q_g	VDD=80V, VGS=10V, ID=8A		16.5		nC
Gate to source charge	Q_{gs}	VDD=80V, VGS=10V, ID=8A		4.2		nC
Gate to drain charge	Q_{gd}	VDD=80V, VGS=10V, ID=8A		3.8		nC
Input capacitance	C_{iss}	VDS=25V, VGS=0V, f=1MHz		665		pF
Reverse transfer capacitance	C_{rss}	VDS=25V, VGS=0V, f=1MHz		26		pF
Output capacitance	C_{oss}	VDS=25V, VGS=0V, f=1MHz		64		pF
Turn-on delay time	$t_{d(on)}$	ID=4A, RL=12.5Ω, VDS=50V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		4.5		ns
Rise time	t_r	ID=4A, RL=12.5Ω, VDS=50V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		5.5		ns
Turn-off delay time	$t_{d(off)}$	ID=4A, RL=12.5Ω, VDS=50V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		14.5		ns
Fall time	t_f	ID=4A, RL=12.5Ω, VDS=50V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		4.5		ns
Diode reverse recovery time	t_{rr}	IF=8A, VGS=0V, -di/dt=100A/μs		49		ns
Diode reverse recovery charge	Q_{rr}	IF=8A, VGS=0V, -di/dt=100A/μs		78		nC

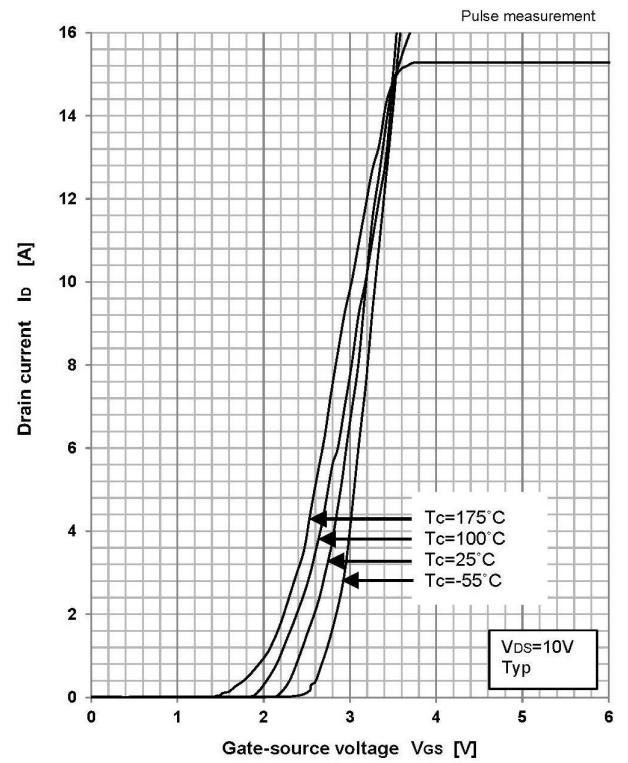
※ : See the original Specifications

CHARACTERISTIC DIAGRAMS

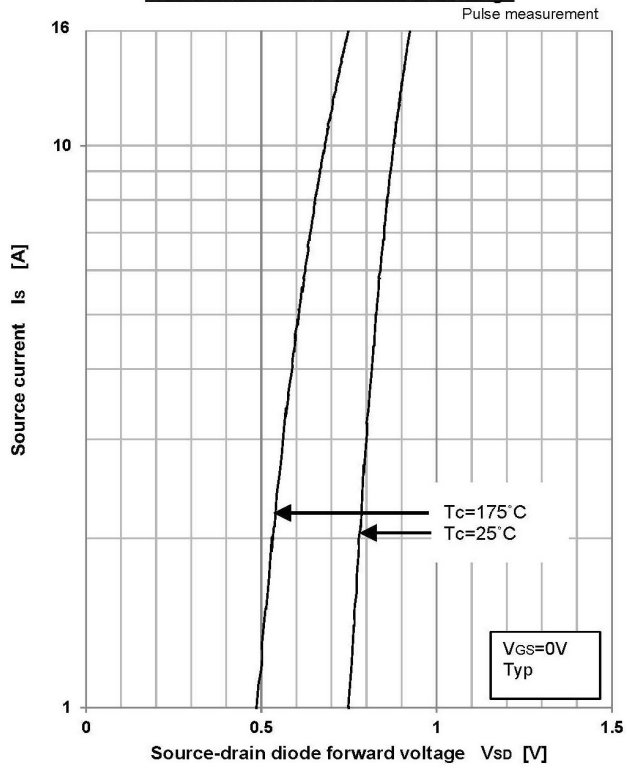
Typical output characteristics



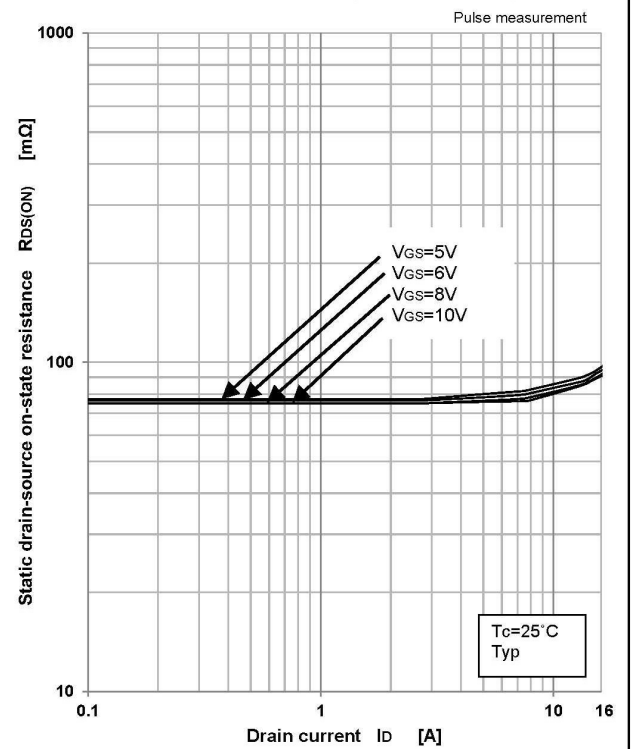
Transfer characteristics

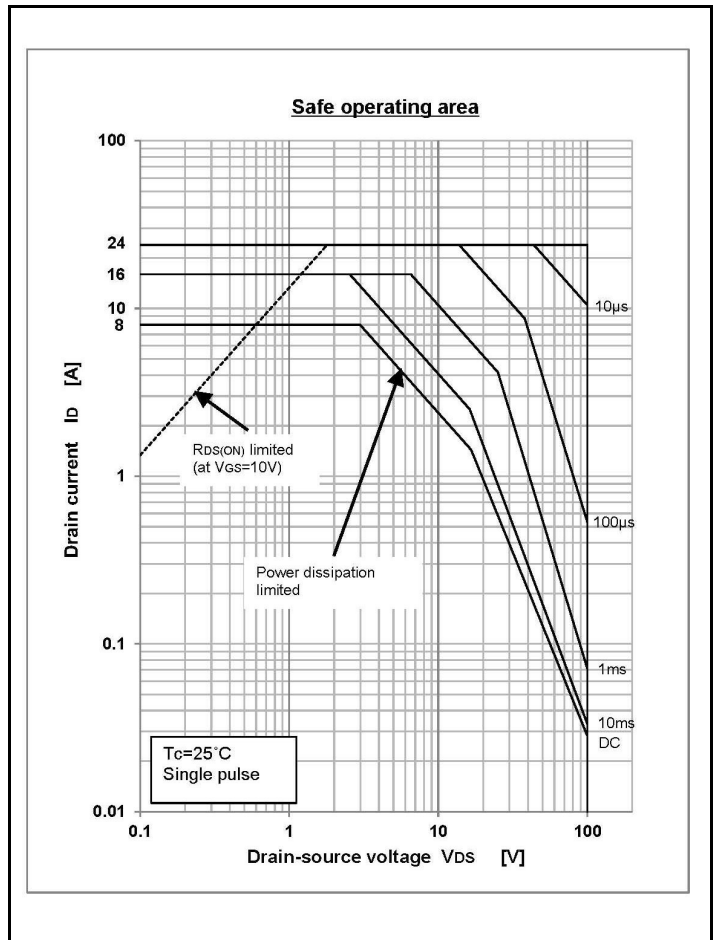
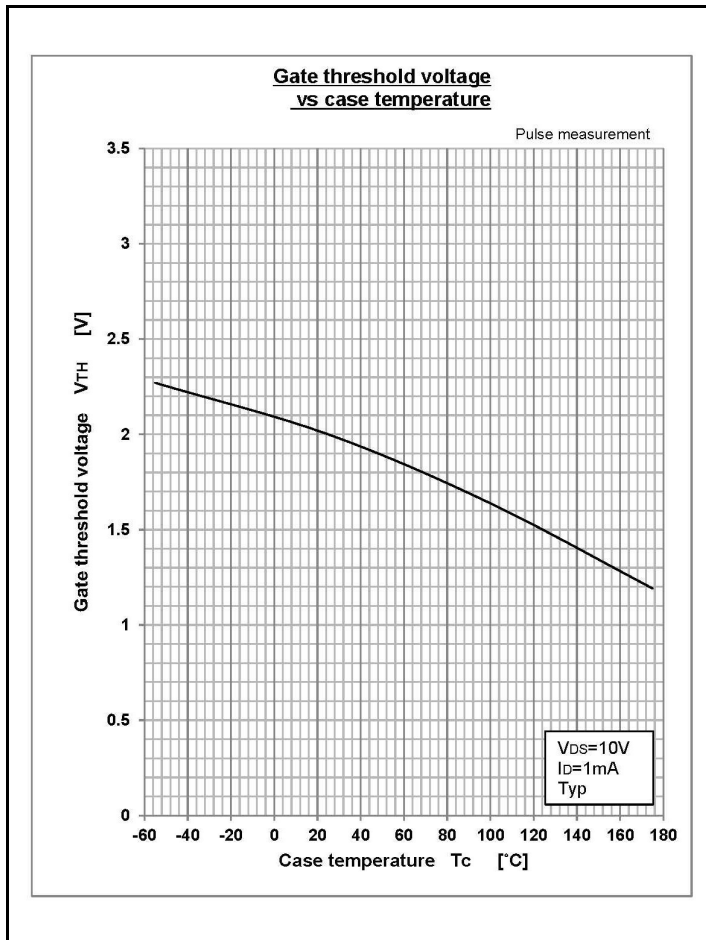
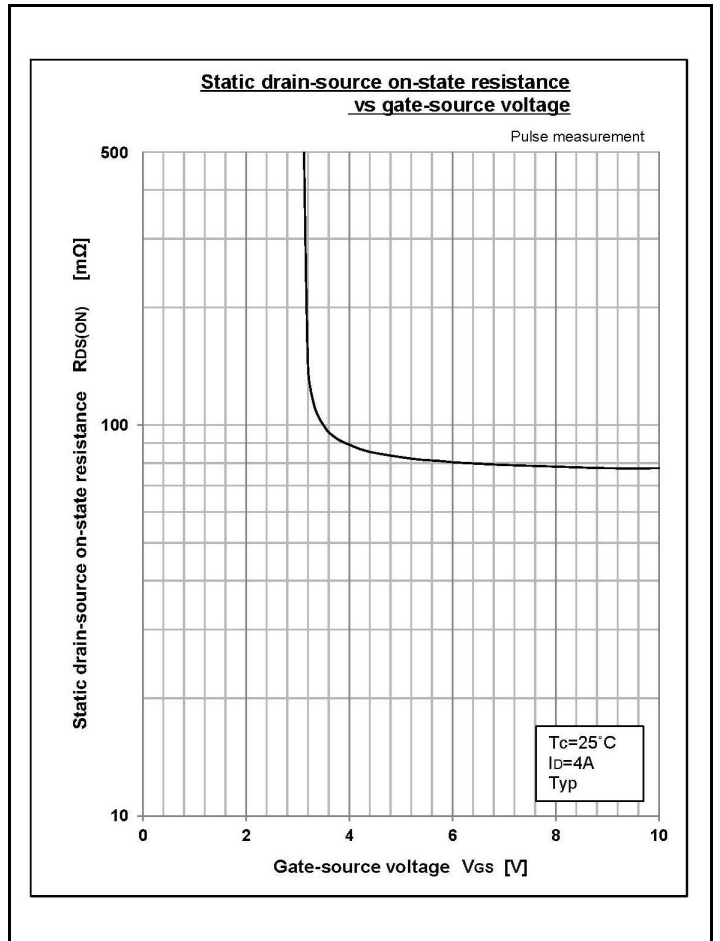
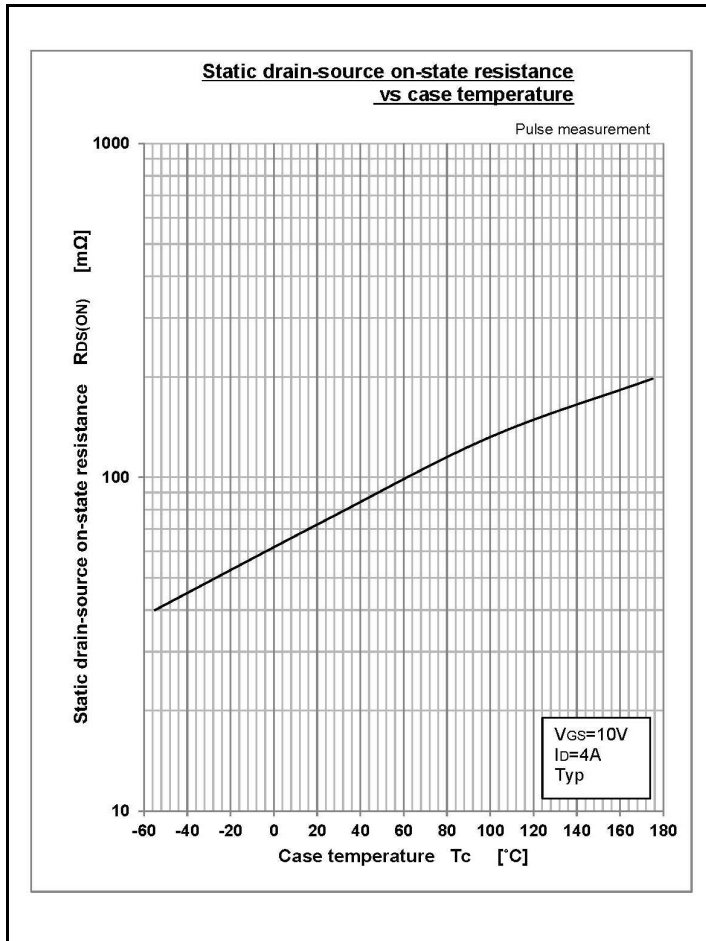


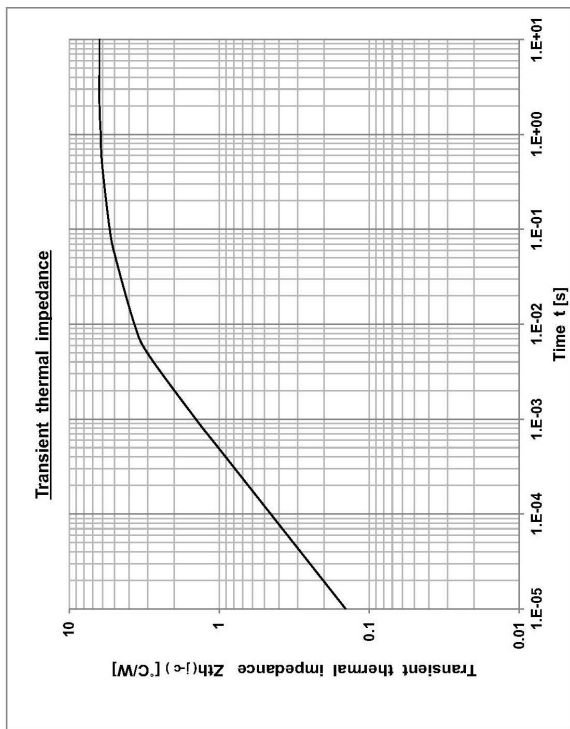
Source current vs source-drain diode forward voltage



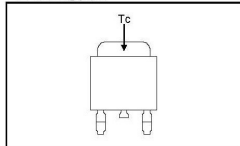
Static drain-source on-state resistance vs drain current







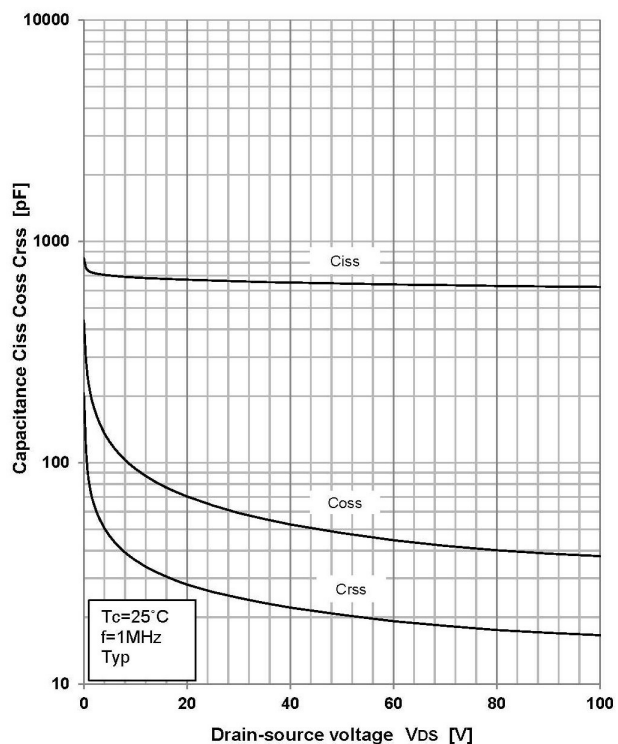
<T_c sensing point>



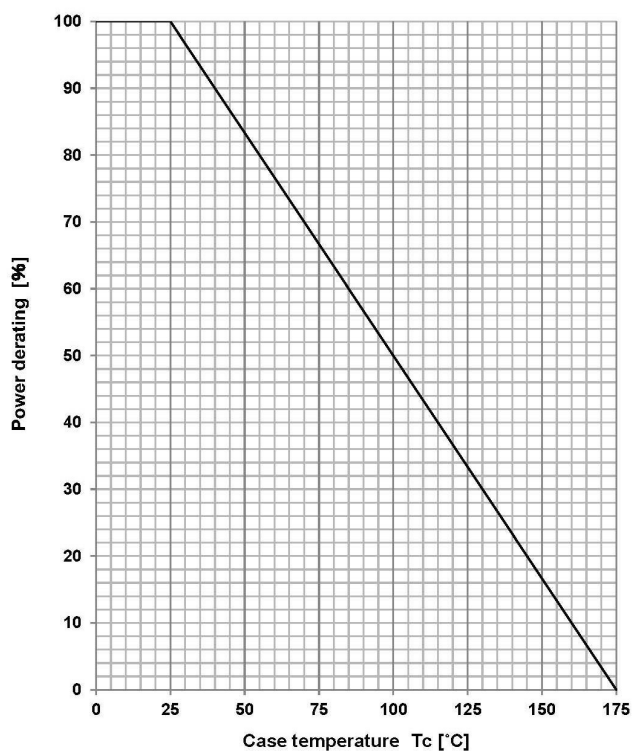
<Substrate detail>

Type	Alumina
Size	1 inch ²
Thickness	0.64 mm
Conductor thickness	20 μm
Pattern area	65 mm ²

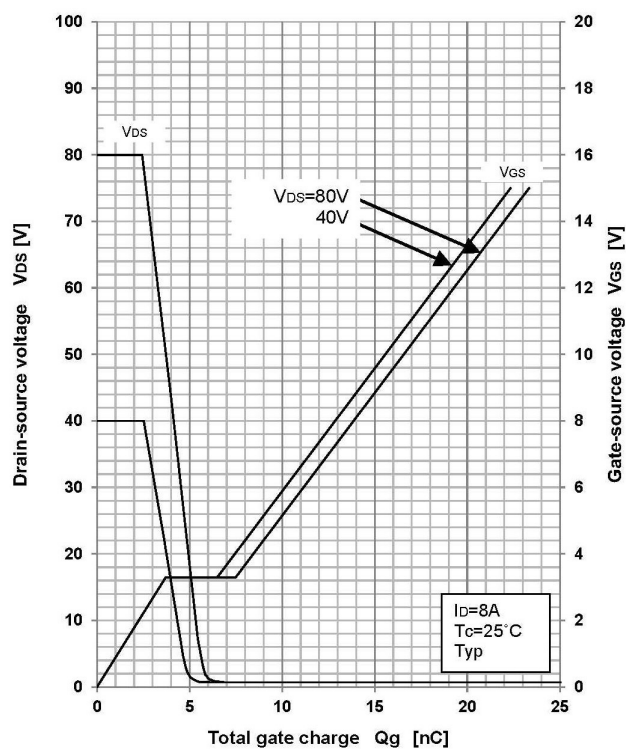
Capacitance characteristics

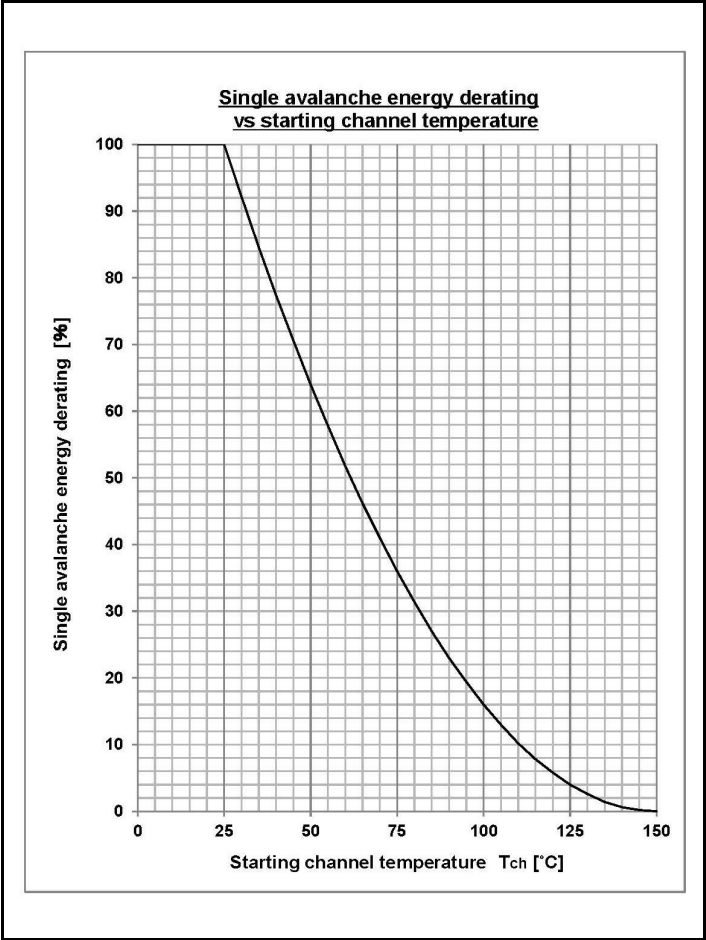


Power derating vs case temperature



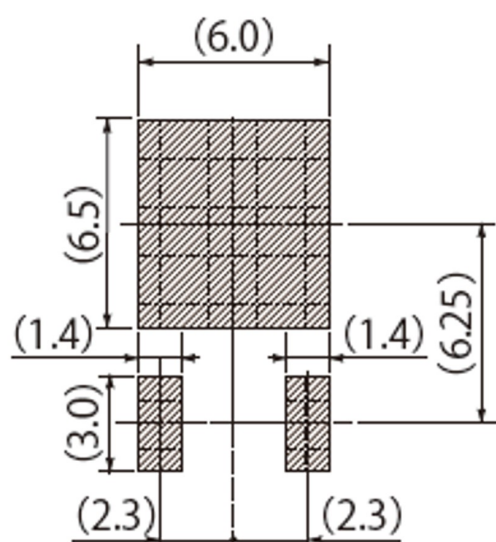
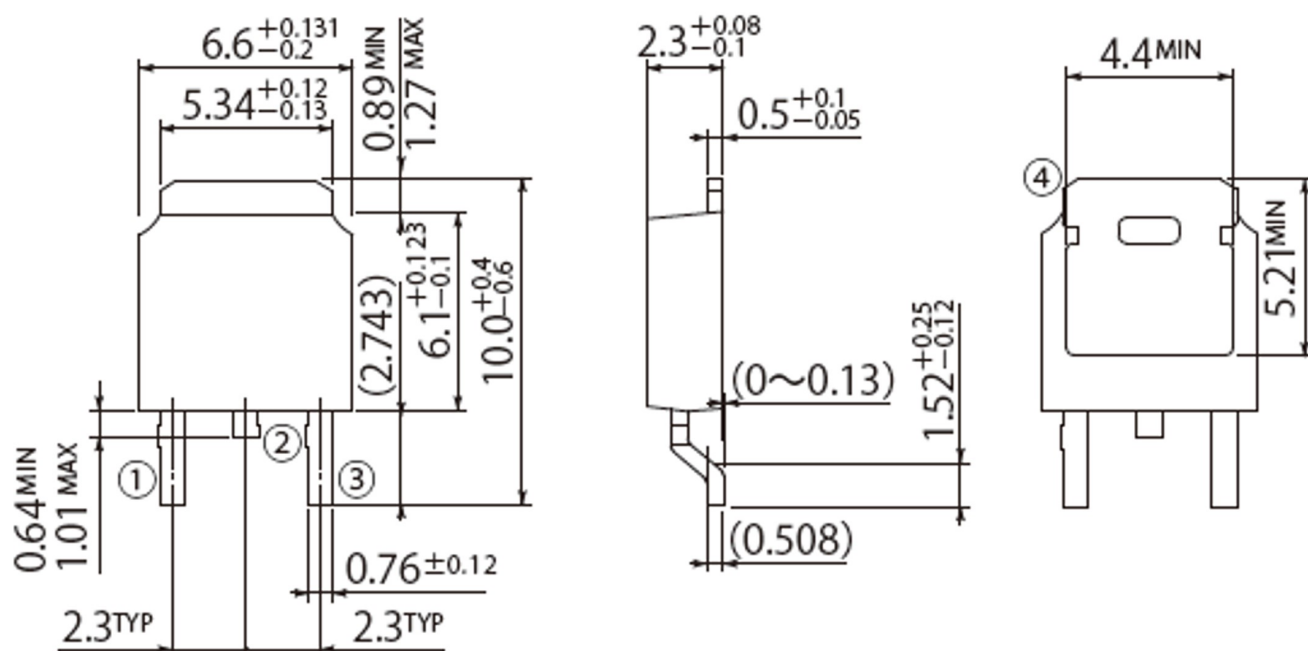
Gate charge characteristics





G2

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



Referential Soldering Pad

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