

# P126FP10SNK

## Power MOSFETs

100V, 126A, N-channel

### Feature

- N-channel
- SMD
- Large Current
- Low Ron
- 10V Gate Drive
- Low Capacitance
- Available for automotive use
- Pb free terminal
- RoHS:Yes

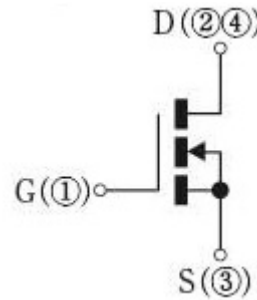
### OUTLINE

Package (House Name): FP

Package (JEITA Code): SC-83 similar



### Equivalent circuit



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

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	T <sub>stg</sub>		-55 to 175	°C
Channel temperature	T <sub>ch</sub>		175	°C
Drain-source voltage	V <sub>DSS</sub>		100	V
Gate-source voltage	V <sub>GSS</sub>		±20	V
Continuous drain current(DC)	I <sub>D</sub>		126	A
Continuous drain current(Peak)	I <sub>DP</sub>	Pulse width 10μs, duty=1/100	504	A
Total power dissipation	P <sub>T</sub>		238	W
Single avalanche current	I <sub>AS</sub>	Starting Tch=25°C Tch≤150°C	61	A
Single avalanche energy	E <sub>AS</sub>	Starting Tch=25°C Tch≤150°C	415	mJ

\* :See the original Specifications

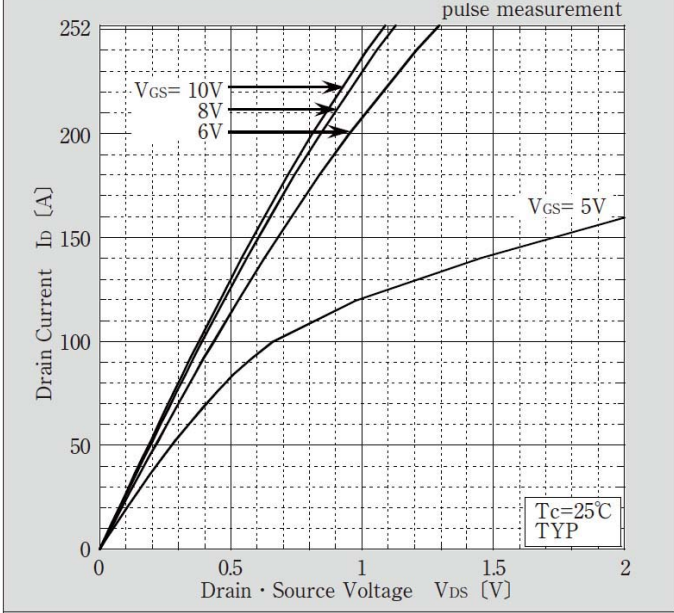
**Electrical Characteristics** (unless otherwise specified : Tc=25°C)

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			±0.1	μA
Forward transconductance	$g_{fs}$	ID=63A, VDS=10V	40	80		S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=63A, VGS=10V		0.0038	0.0048	Ω
Gate threshold voltage	$V_{th}$	ID=1mA, VDS=10V	2	3	4	V
Source-drain diode forward voltage	$V_{SD}$	IS=126A, VGS=0V			1.5	V
Thermal resistance	$R_{th(j-c)}$	Junction to case			0.63	°C/W
Total gate charge	$Q_g$	VDD=80V, VGS=10V, ID=126A		160		nC
Gate to source charge	$Q_{gs}$	VDD=80V, VGS=10V, ID=126A		46		nC
Gate to drain charge	$Q_{gd}$	VDD=80V, VGS=10V, ID=126A		66		nC
Input capacitance	$C_{iss}$	VDS=25V, VGS=0V, f=1MHz		9500		pF
Reverse transfer capacitance	$C_{rss}$	VDS=25V, VGS=0V, f=1MHz		380		pF
Output capacitance	$C_{oss}$	VDS=25V, VGS=0V, f=1MHz		835		pF
Turn-on delay time	$t_{d(on)}$	ID=63A, RL=0.79Ω, VDD=50V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		13		ns
Rise time	$t_r$	ID=63A, RL=0.79Ω, VDD=50V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		40		ns
Turn-off delay time	$t_{d(off)}$	ID=63A, RL=0.79Ω, VDD=50V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		110		ns
Fall time	$t_f$	ID=63A, RL=0.79Ω, VDD=50V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		52		ns
Diode reverse recovery time	$t_{rr}$	IF=126A, VGS=0V, di/dt=100A/μs		68		ns
Diode reverse recovery charge	$Q_{rr}$	IF=126A, VGS=0V, di/dt=100A/μs		170		nC

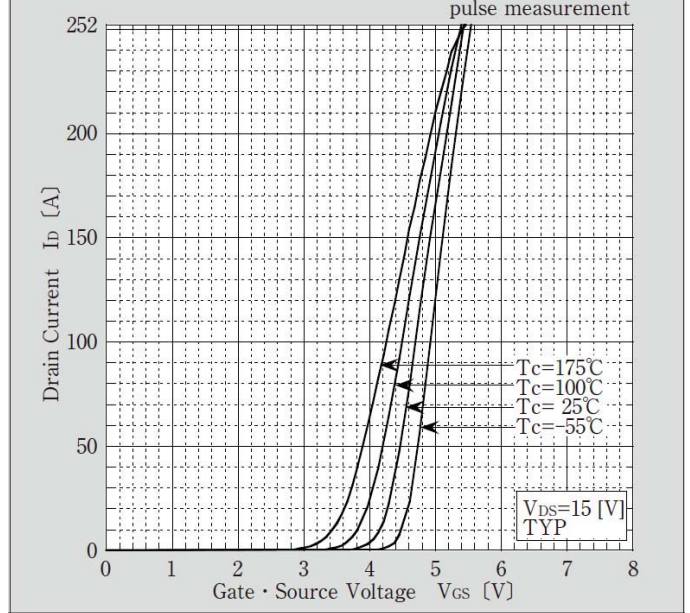
※ : See the original Specifications

# CHARACTERISTIC DIAGRAMS

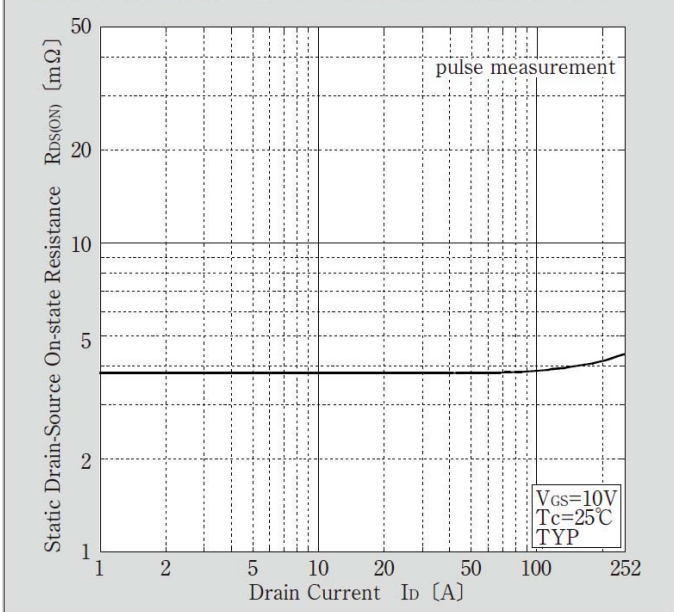
## Typical Output Characteristics



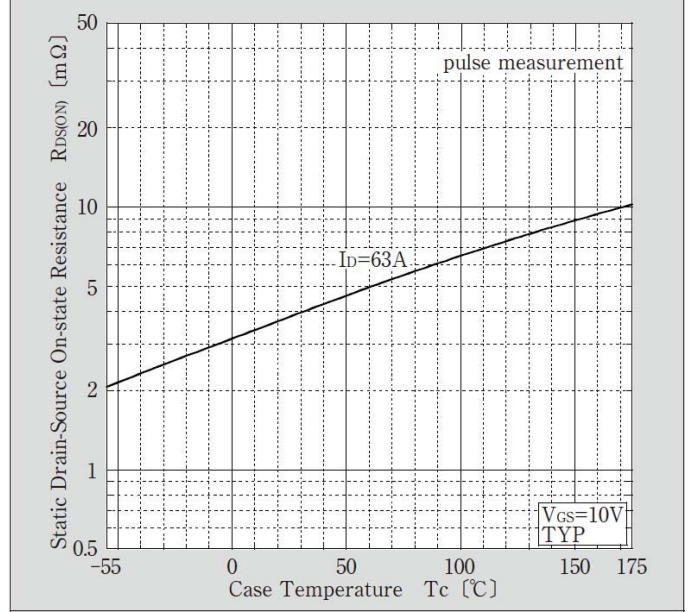
## Transfer Characteristics



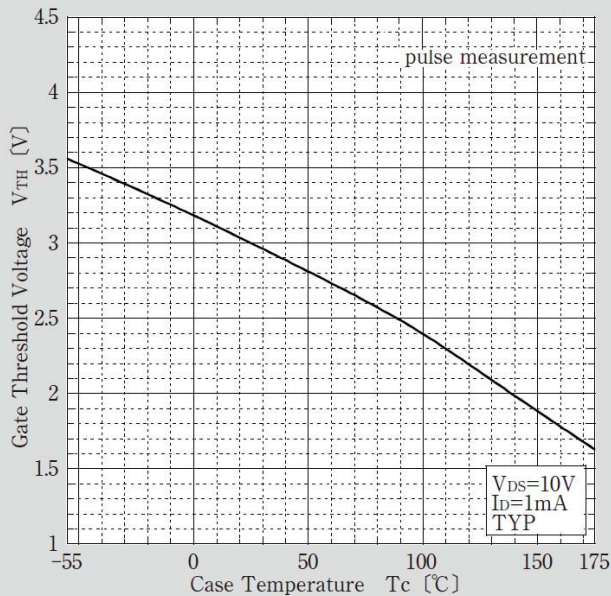
## Static Drain-Source On-state Resistance vs Drain Current



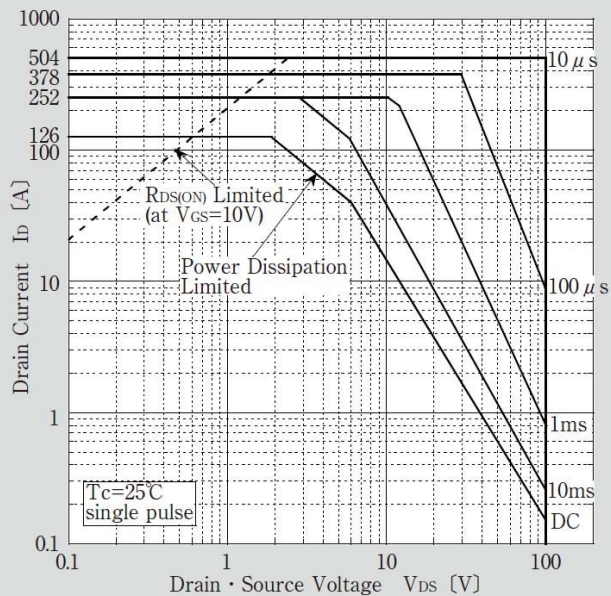
## Static Drain-Source On-state Resistance vs Case Temperature



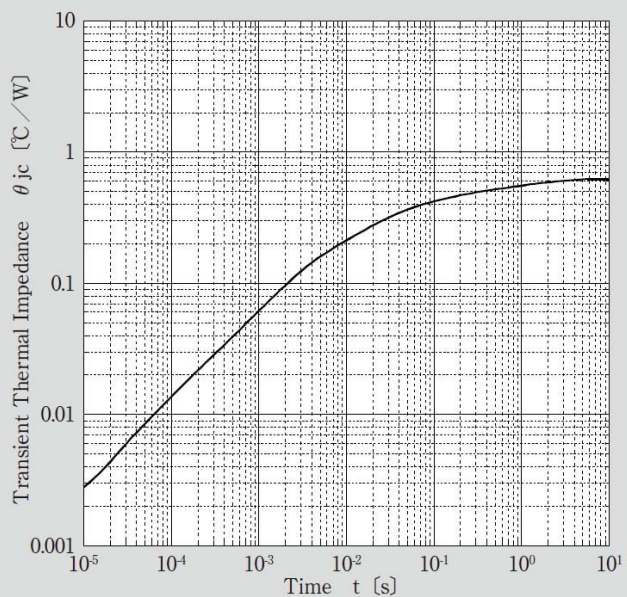
### Gate Threshold Voltage vs Case Temperature



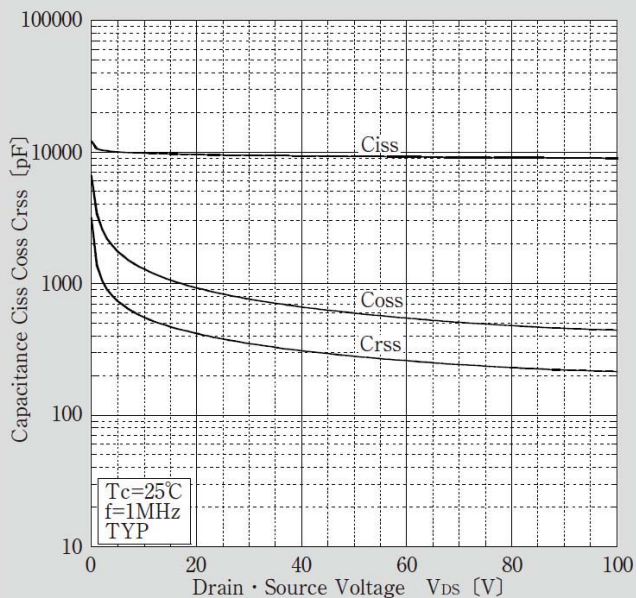
### Safe Operating Area



### Transient Thermal Impedance

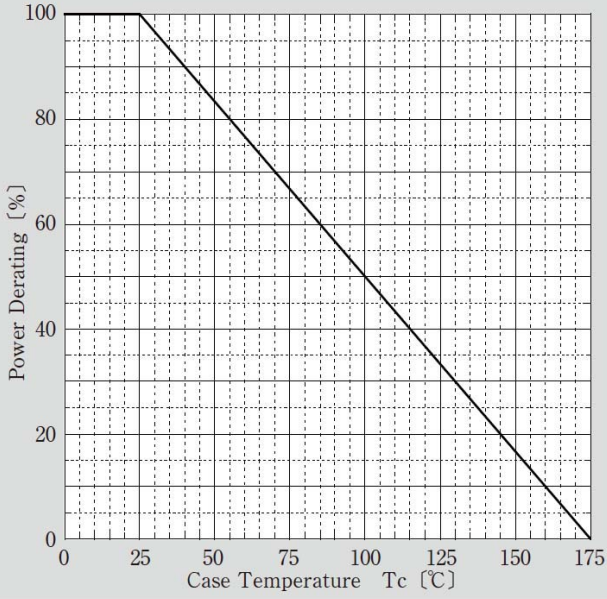


### Capacitance Characteristics

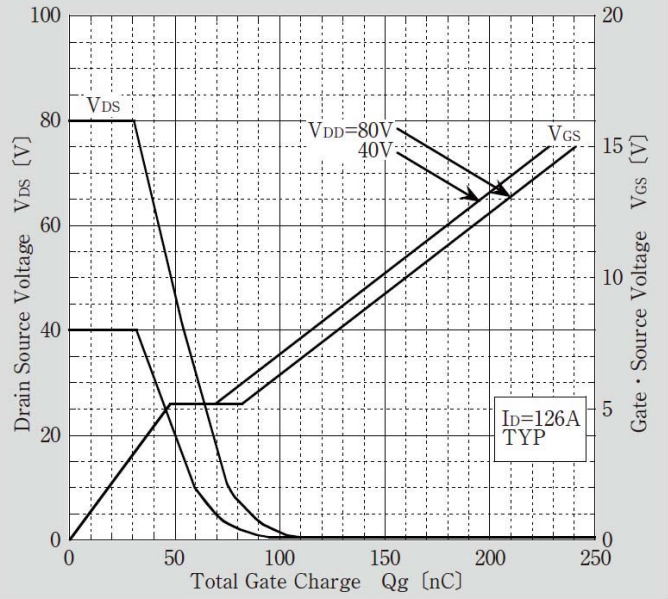




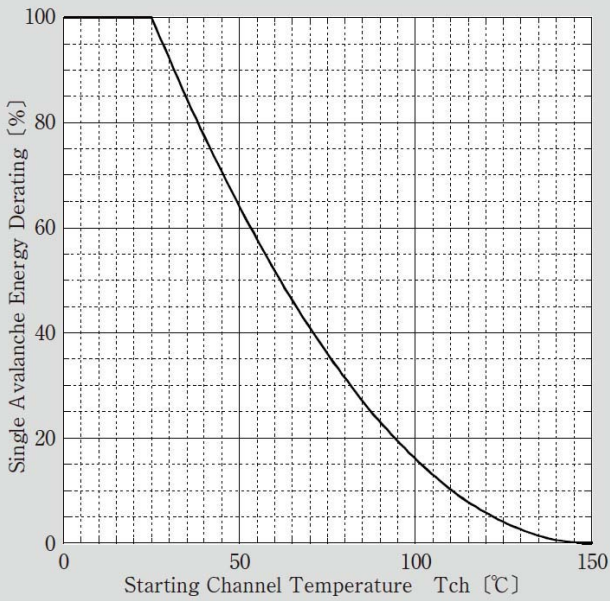
Power Derating - Case Temperature



Gate Charge Characteristics

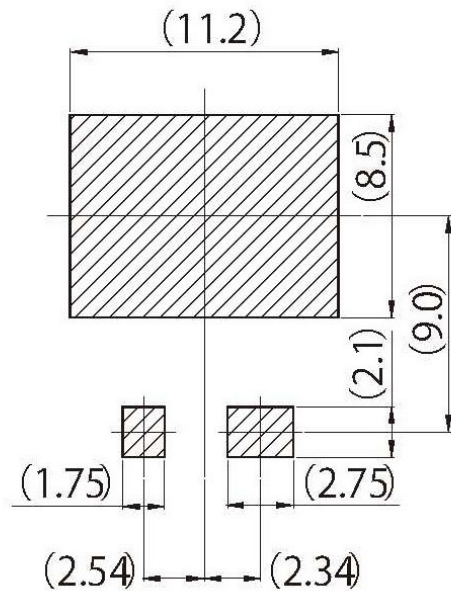
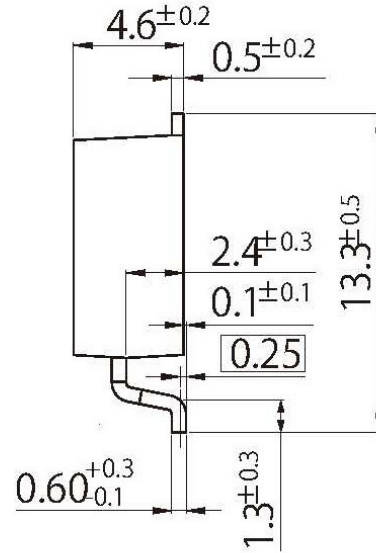
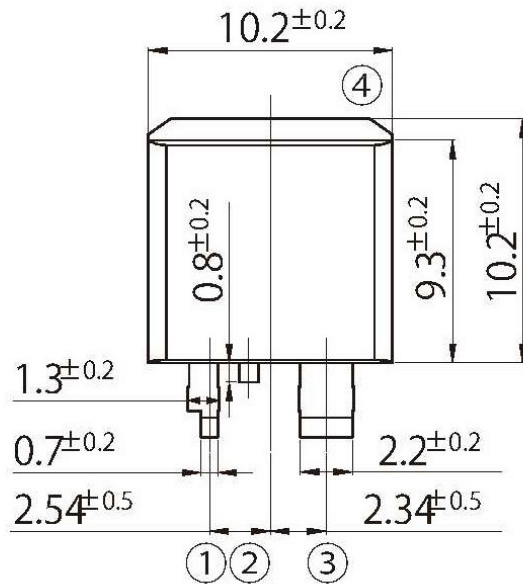


Single Avalanche Energy Derating vs Channel Temperature



H5

JEDEC Code	-
JEITA Code	SC-83 similar
House Name	FP



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

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