

# P153FP6SNK

**Power MOSFETs**  
**60V, 153A, N-channel**

**Feature**

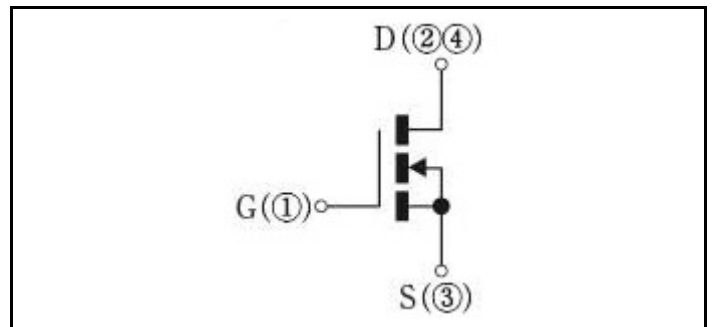
- N-channel
- SMD
- Large Current
- Low Ron
- 10V Gate Drive
- Low Capacitance
- Available for automotive use
- Halogen free
- Pb free terminal
- RoHS:Yes

**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	Tstg		-55 to 175	°C
Channel temperature	Tch		175	°C
Drain-source voltage	V <sub>DSS</sub>		60	V
Gate-source voltage	V <sub>GSS</sub>		±20	V
Continuous drain current(DC)	I <sub>D</sub>		153	A
Continuous drain current(Peak)	I <sub>DP</sub>	Pulse width 10µs, duty=1/100	612	A
Total power dissipation	P <sub>T</sub>		178	W
Single avalanche current	I <sub>AS</sub>	Starting Tch=25°C Tch≤150°C	57	A
Single avalanche energy	E <sub>AS</sub>	Starting Tch=25°C Tch≤150°C	355	mJ

※ :See the original Specifications

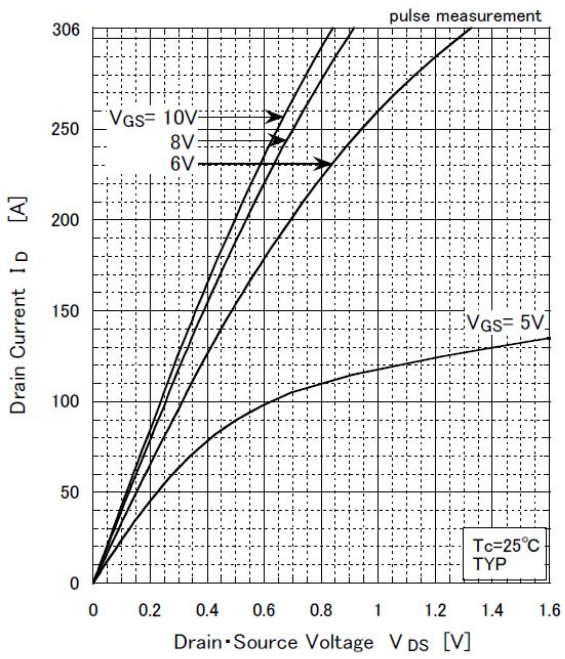
**Electrical Characteristics** (unless otherwise specified : Tc=25°C)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	60			V
Zero gate voltage drain current	$I_{DSS}$	VDS=60V, VGS=0V			1	μA
Gate-source leakage current	$I_{GSS}$	VGS=±20V, VDS=0V			±0.1	μA
Forward transconductance	$g_{fs}$	ID=76.5A, VDS=10V	27			S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=76.5A, VGS=10V		0.0024	0.003	Ω
Gate threshold voltage	$V_{th}$	ID=1mA, VDS=10V	2	3	4	V
Source-drain diode forward voltage	$V_{SD}$	IS=153A, VGS=0V			1.5	V
Thermal resistance	$R_{th(j-c)}$	Junction to case			0.84	°C/W
Total gate charge	$Q_g$	VDD=48V, VGS=10V, ID=153A		105		nC
Gate to source charge	$Q_{gs}$	VDD=48V, VGS=10V, ID=153A		31		nC
Gate to drain charge	$Q_{gd}$	VDD=48V, VGS=10V, ID=153A		51		nC
Input capacitance	$C_{iss}$	VDS=25V, VGS=0V, f=1MHz		5850		pF
Reverse transfer capacitance	$C_{rss}$	VDS=25V, VGS=0V, f=1MHz		370		pF
Output capacitance	$C_{oss}$	VDS=25V, VGS=0V, f=1MHz		760		pF
Turn-on delay time	$t_{d(on)}$	ID=76.5A, RL=0.39Ω, VDD=30V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		10		ns
Rise time	$t_r$	ID=76.5A, RL=0.39Ω, VDD=30V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		57		ns
Turn-off delay time	$t_{d(off)}$	ID=76.5A, RL=0.39Ω, VDD=30V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		56		ns
Fall time	$t_f$	ID=76.5A, RL=0.39Ω, VDD=30V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		31		ns
Diode reverse recovery time	$t_{rr}$	IF=153A, VGS=0V, di/dt=100A/μs		45		ns
Diode reverse recovery charge	$Q_{rr}$	IF=153A, VGS=0V, di/dt=100A/μs		58		nC

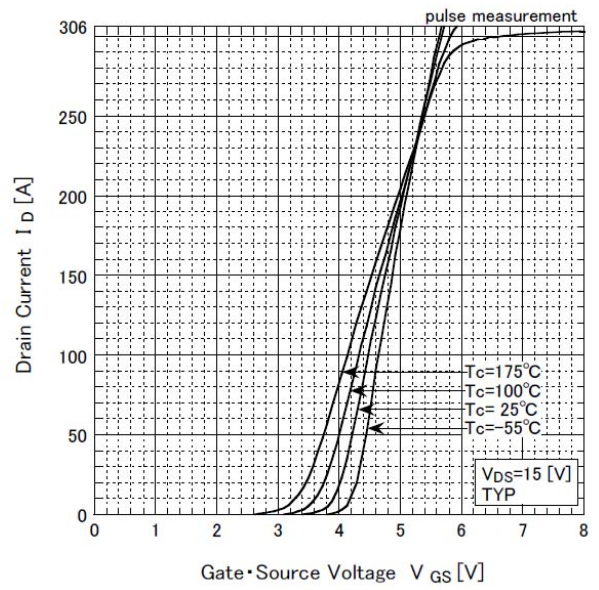
※ : See the original Specifications

# CHARACTERISTIC DIAGRAMS

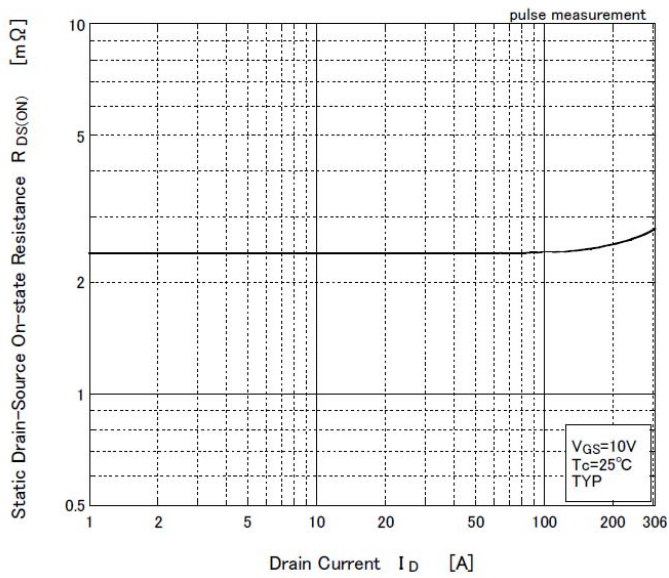
Typical Output Characteristics



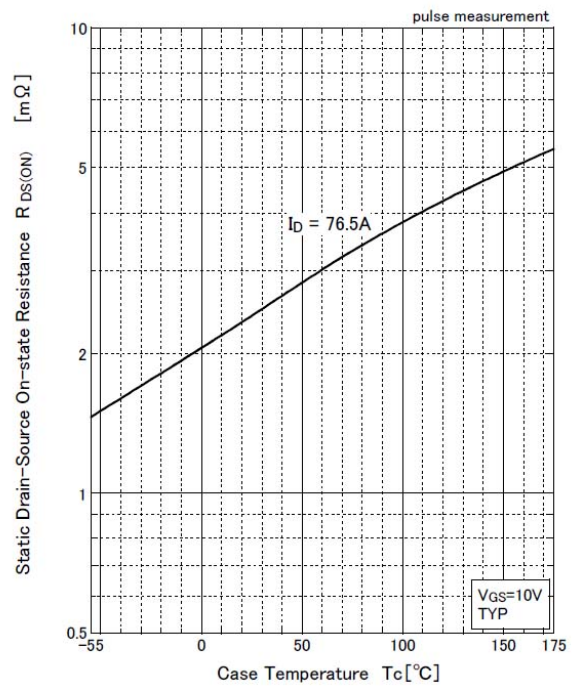
Transfer Characteristics

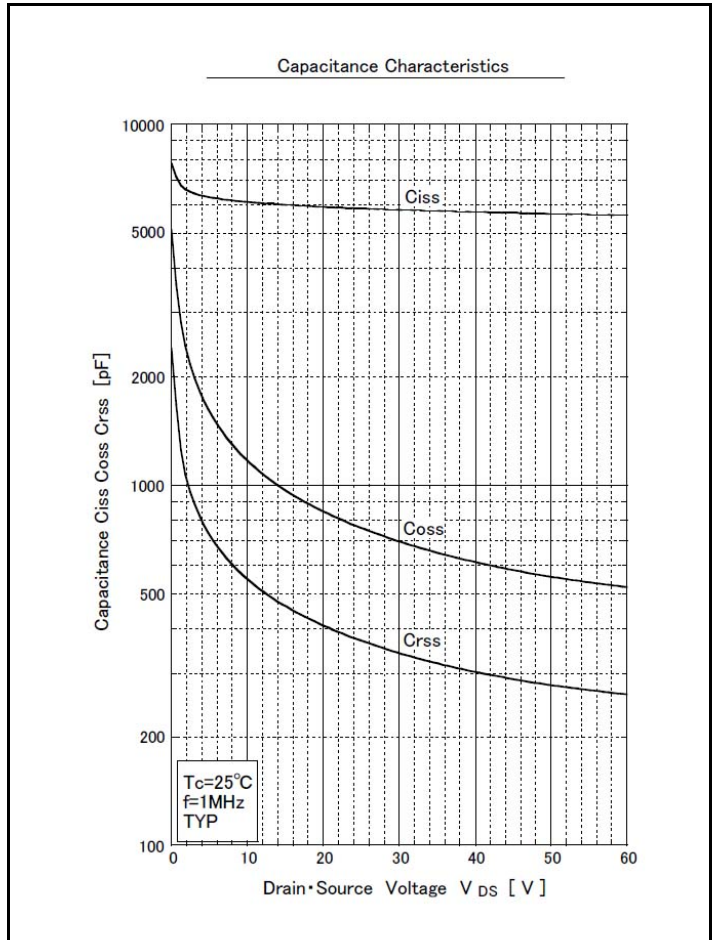
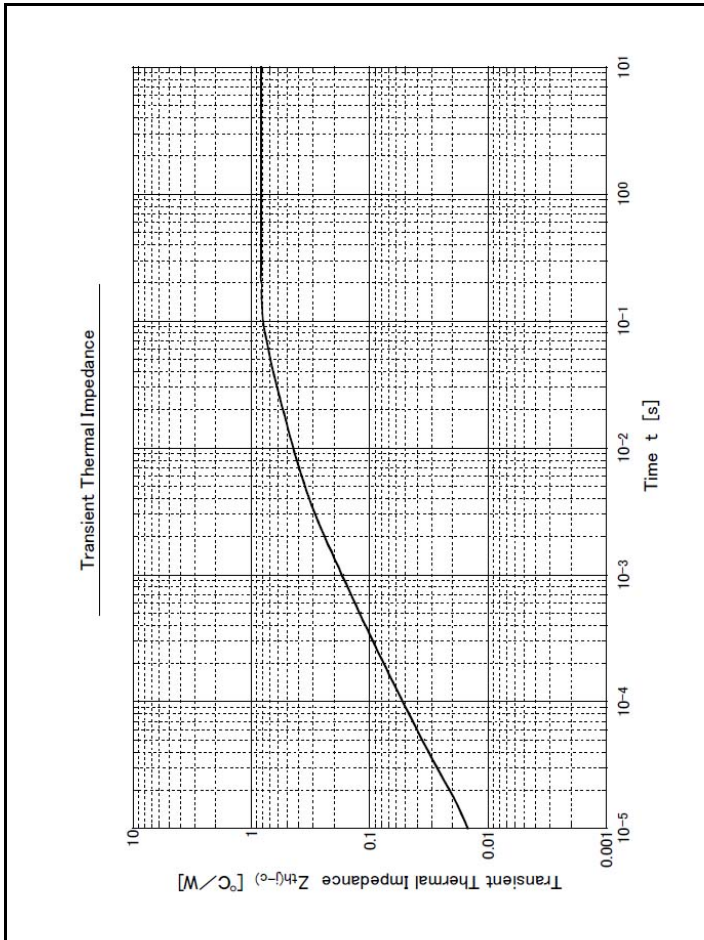
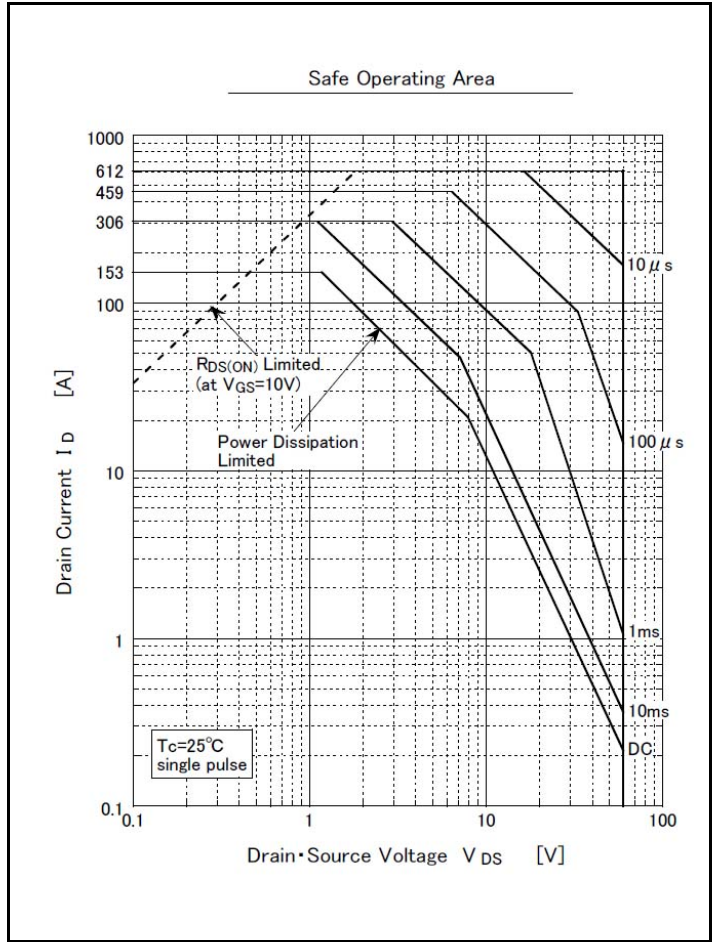
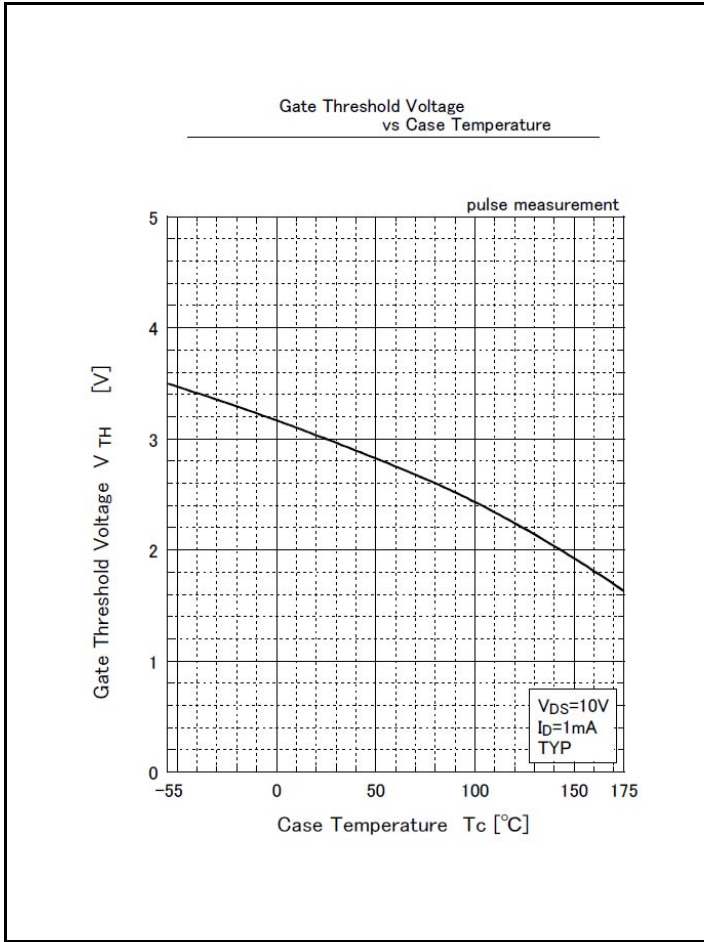


Static Drain-Source On-state Resistance vs Drain Current

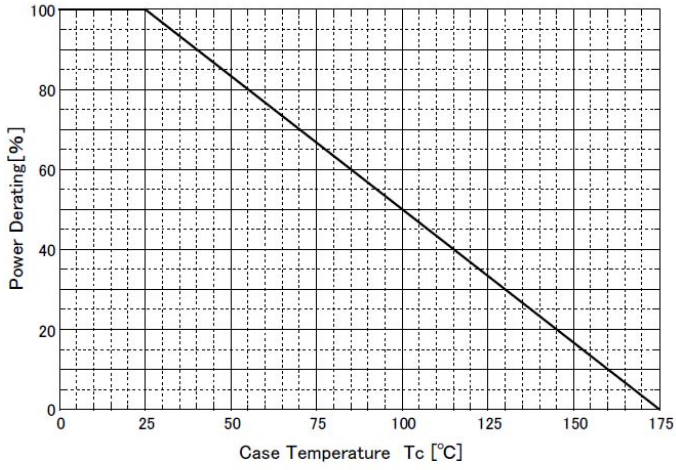


Static Drain-Source On-state Resistance vs Case Temperature

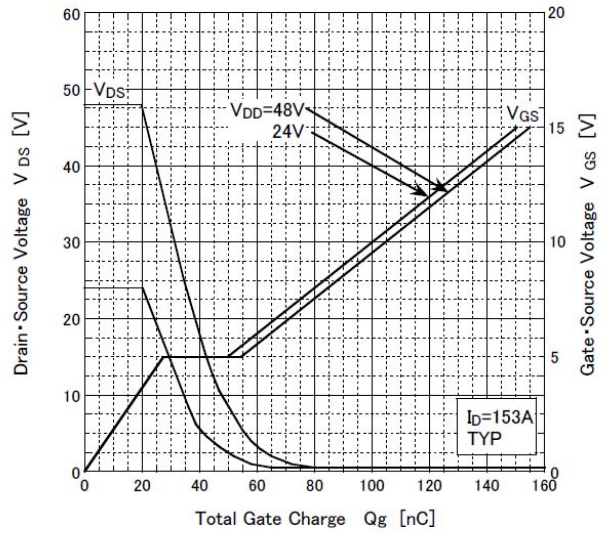




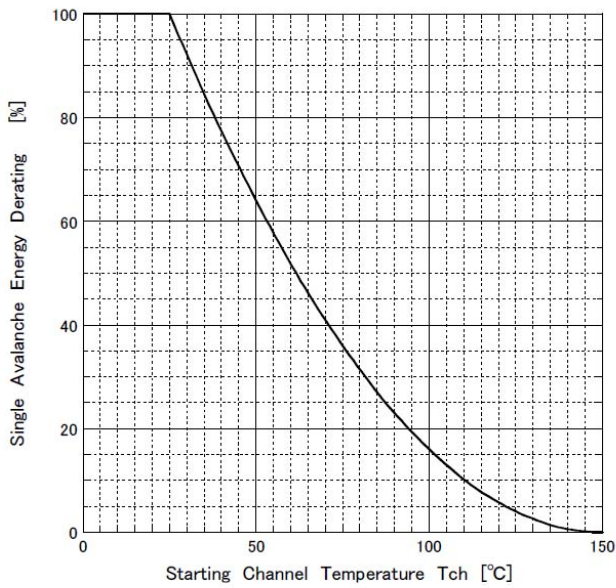
Power Derating - Case Temperature



Gate Charge Characteristics

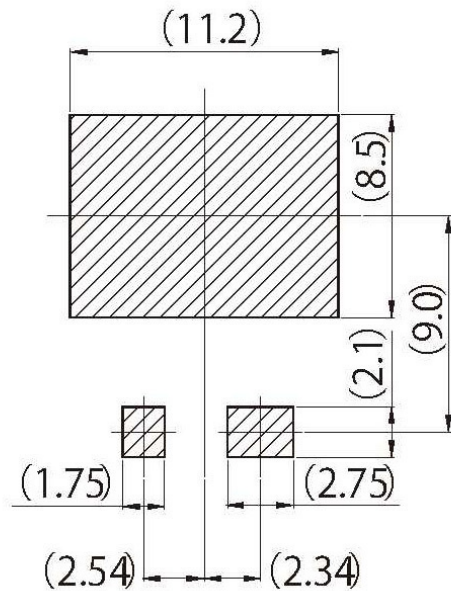
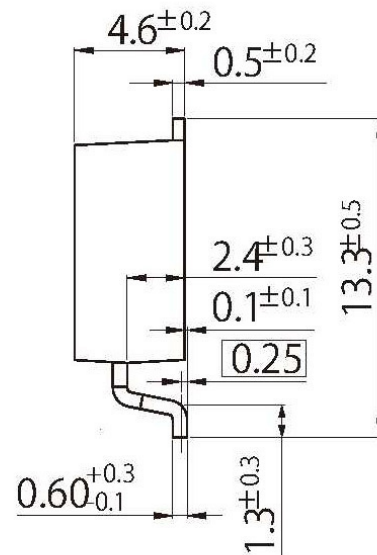
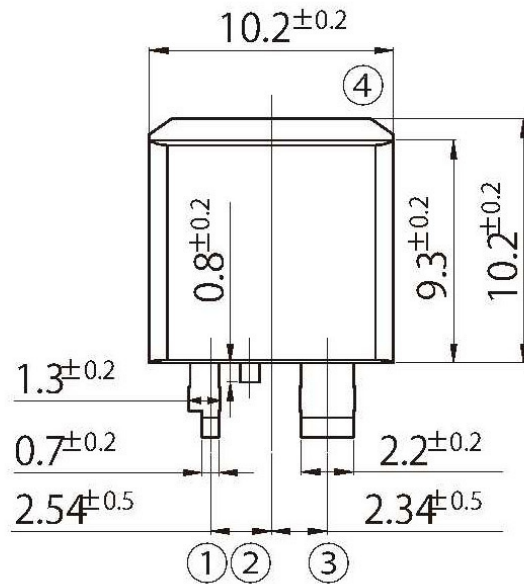


Single Avalanche Energy Derating vs Channel Temperature



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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