ShinDengen

P30W60HP2V

Power MOSFETs
600V, 30A, N-channel

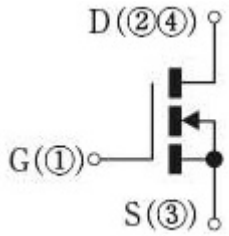
Feature

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

OUTLINE

Package (House Name): MTO-3PV
Package (JEDEC Code): TO-247AD

Equivalent circuit



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

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	Tstg		-55 to 150	℃
Channel tempertature	Tch		-55 to 150	℃
Drain-source voltage	V_{DSS}		600	V
Gate-source voltage	V_{GSS}		±30	V
Continuous drain current(DC)	I_D		30	A
Continuous drain current(Peak)	I_{DP}	Pulse width 10μs, duty=1/100	120	A
Continuous source current(DC)	Is		30	A
Total power dissipation	P_T		310	W
Repetitive avalanche current	I_{AR}	Starting Tch=25℃ Tch≦150℃	30	A
Single avalanche energy	E_{AS}	Starting Tch=25℃ Tch≦150℃	160	mJ
Repetitive avalanche energy	E_{AR}	Starting Tch=25℃ Tch≦150℃	16	mJ
Drain-source diode di/dt strength	di/dt	Is=30A, Tc=25℃	350	A/μs
Mounting torque	TOR	(Recommended torque：0.5N･m)	0.8	N･m

※ ：See the original Specifications

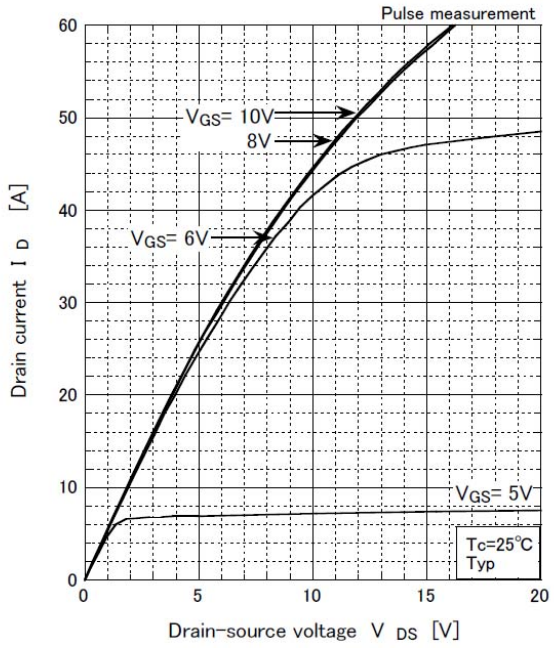
Electrical Characteristics (unless otherwise specified : Tc=25℃)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	600			V
Zero gate voltage drain current	I_{DSS}	VDS=600V, VGS=0V			100	μA
Gate-source leakage current	I_{GSS}	VGS=±30V, VDS=0V			±0.1	μA
Forward transconductance	g_{fs}	ID=15A, VDS=10V	16.5	33		S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=15A, VGS=10V		0.185	0.23	Ω
Gate threshold voltage	Vth	ID=3mA, VDS=10V	3	3.75	4.5	V
Source-drain diode forward voltage	V_{SD}	IS=15A, VGS=0V			1.5	V
Thermal resistance	Rth(j-c)	Junction to case, with heatsink			0.4	℃/W
Total gate charge	Qg	VDD=400V, VGS=10V, ID=30A		70		nC
Input capacitance	Ciss	VDS=50V, VGS=0V, f=1MHz		3935		pF
Reverce transfer capacitnce	Crss	VDS=50V, VGS=0V, f=1MHz		6.8		pF
Output capacitance	Coss	VDS=50V, VGS=0V, f=1MHz		305		pF
Turn-on delay time	td(on)	ID=15A, RL=10Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		71		ns
Rise time	tr	ID=15A, RL=10Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		78		ns
Turn-off delay time	td(off)	ID=15A, RL=10Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		256		ns
Fall time	tf	ID=15A, RL=10Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		65		ns

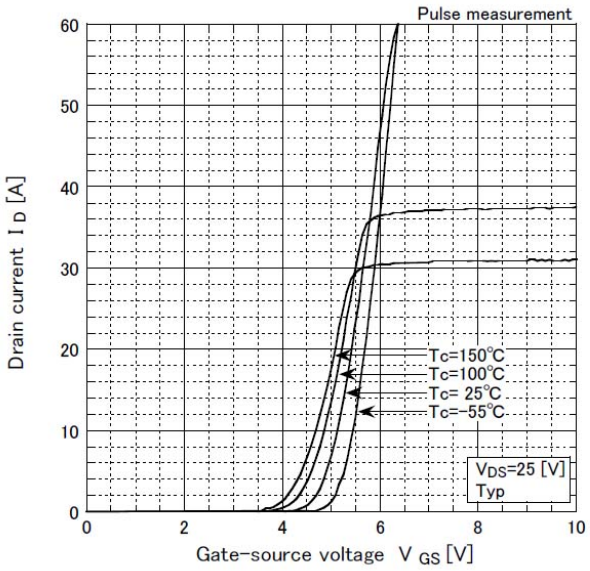
※ ：See the original Specifications

CHARACTERISTIC DIAGRAMS

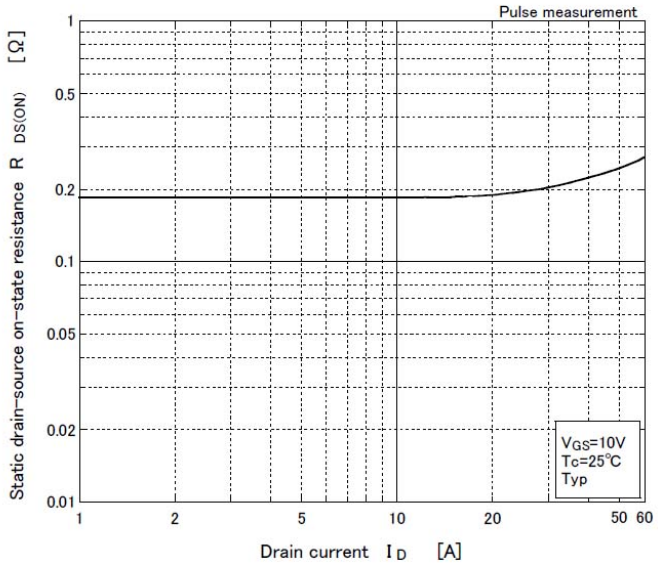
Typical output characteristics



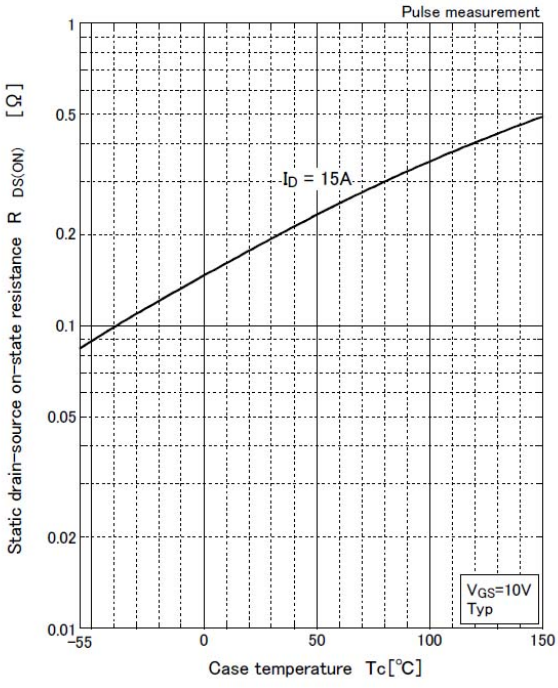
Transfer characteristics



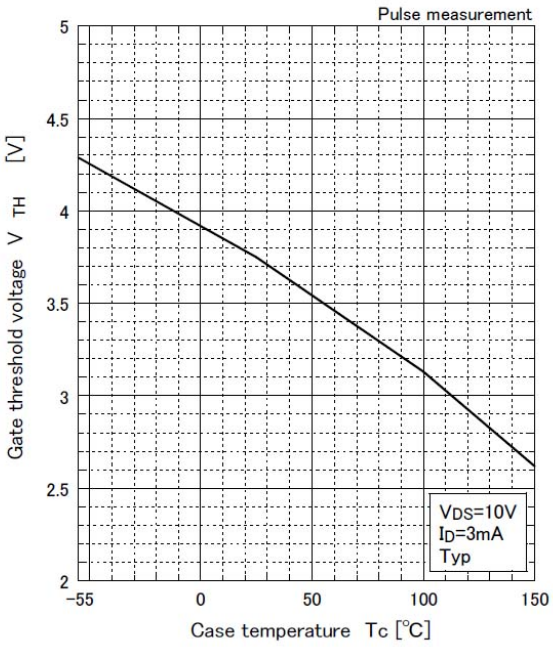
Static drain-source on-state resistance vs drain current



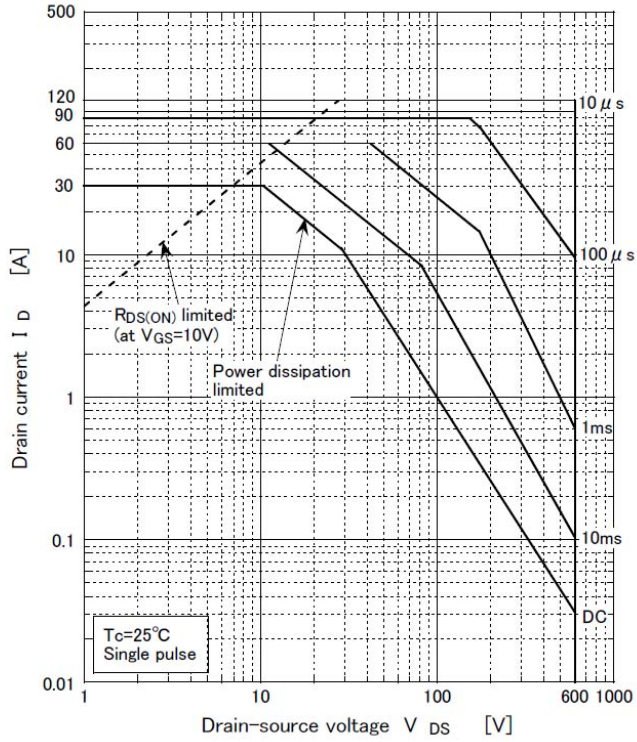
Static drain-source on-state resistance vs case temperature

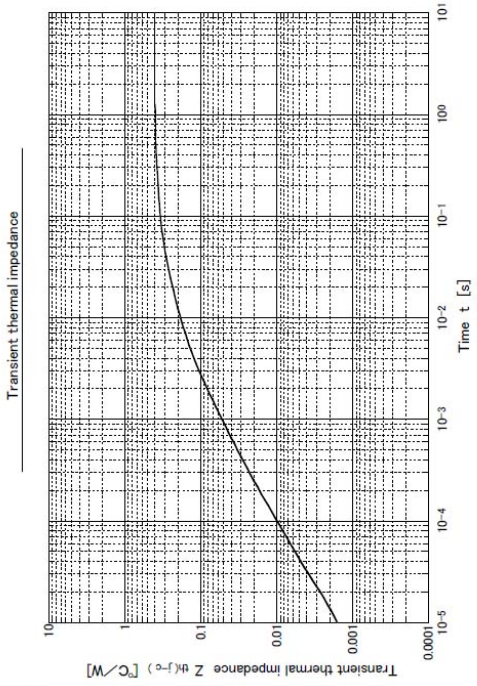


Gate threshold voltage
vs case temperature

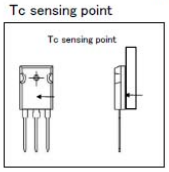


Safe operating area

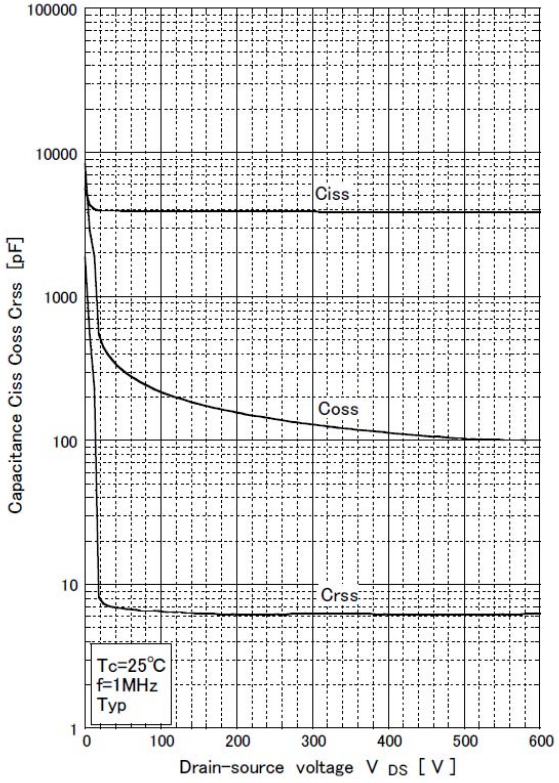




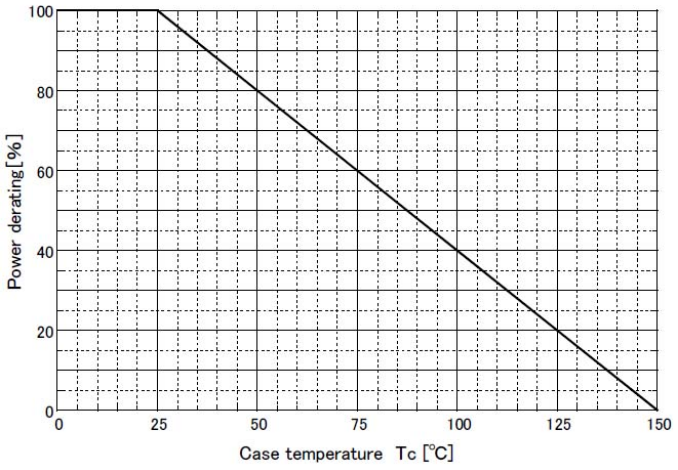
Tc sensing point



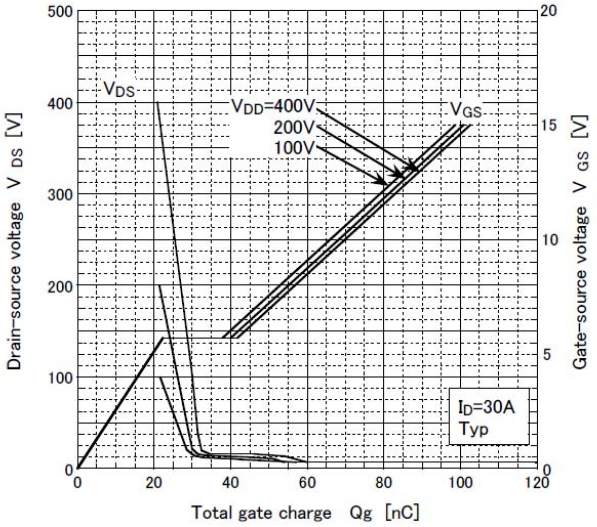
Capacitance characteristics



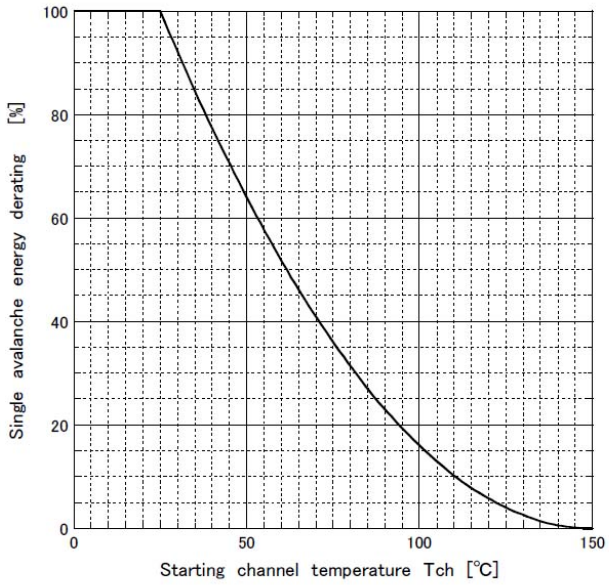
Power derating – case temperature



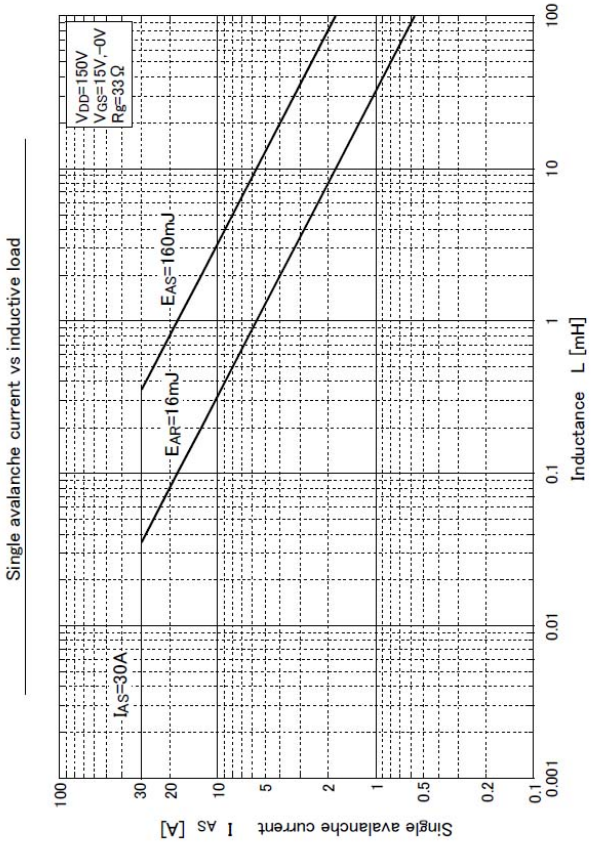
Gate charge characteristics



Single avalanche energy derating
vs channel temperature



Single avalanche current vs inductive load



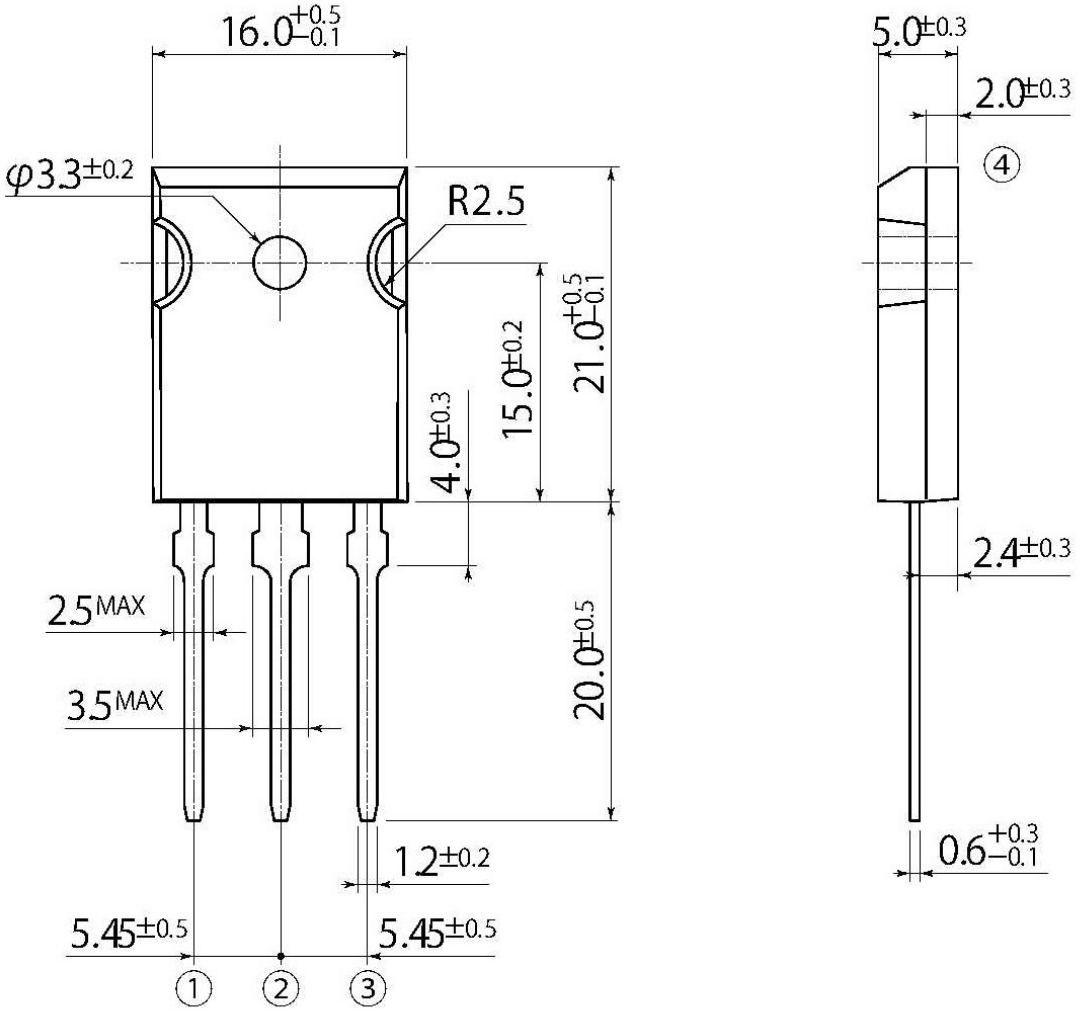
Outline Dimensions

unit:mm

scale: 2/1

K7

JEDEC Code	TO-247AD
JEITA Code	–
House Name	MTO-3PV



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