

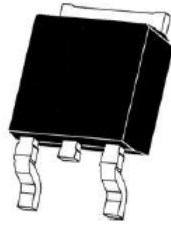


Features

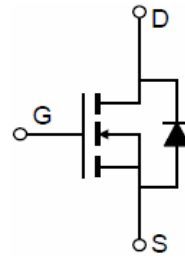
- Enhancement mode
- Very low on-resistance $R_{DS(on)}$ @ $V_{GS}=4.5\text{ V}$
- Fast Switching
- 100% Avalanche test
- Pb-free lead plating; RoHS compliant

Product Summary

V_{DS}	30	V
$R_{DS(on),TYP}$ @ $V_{GS}=10\text{ V}$	2.5	m Ω
I_D	120	A



TO-252-2L top view



Schematic diagram

Maximum ratings, at $T_A = 25^\circ\text{C}$, unless otherwise specified

Symbol	Parameter	Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage	30	V
I_S	Diode continuous forward current	$T_C = 25^\circ\text{C}$ 120	A
I_D	Continuous drain current @ $V_{GS}=10\text{V}$	$T_C = 25^\circ\text{C}$ 120	A
		$T_C = 100^\circ\text{C}$ 80	A
I_{DM}	Pulse drain current tested ①	$T_C = 25^\circ\text{C}$ 480	A
EAS	Avalanche energy, single pulsed ②	100	mJ
P_D	Maximum power dissipation	$T_C = 25^\circ\text{C}$ 45	W
V_{GS}	Gate-Source voltage	± 20	V
T_{STG} T_J	Storage and operating temperature range	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Typical	Unit
$R_{\theta JC}$	Thermal Resistance-Junction to Case	2.4	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	62	$^\circ\text{C/W}$

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T_j=25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V, V _{GS} =0V	--	--	1	μA
	Zero Gate Voltage Drain Current(T _j =85°C	V _{DS} =24V, V _{GS} =0V	--	--	30	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.5	V
R _{DS(ON)}	Drain-Source On-State Resistance ^③	V _{GS} =10V, I _D =30A	--	2.5	3.5	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance ^③	V _{GS} =4.5V, I _D =30A	--	3.9	4.5	mΩ
Dynamic Electrical Characteristics @ T_j = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	--	2921	--	pF
C _{oss}	Output Capacitance		--	440	--	pF
C _{rss}	Reverse Transfer Capacitance		--	416	--	pF
R _g	Gate Resistance	f=1MHz	--	1.2	--	Ω
Q _g	Total Gate Charge	V _{DS} =15V, I _D =20A, V _{GS} =10V	--	63	--	nC
Q _{gs}	Gate-Source Charge		--	13	--	nC
Q _{gd}	Gate-Drain Charge		--	16	--	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =20V, I _D =20A, R _G =3Ω, V _{GS} =10V	--	14	--	nS
t _r	Turn-on Rise Time		--	18	--	nS
t _{d(off)}	Turn-Off Delay Time		--	99	--	nS
t _f	Turn-Off Fall Time		--	45	--	nS
Source- Drain Diode Characteristics @ T_j = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	I _{SD} =20A, V _{GS} =0V	--	0.79	1.2	V
t _{rr}	Reverse Recovery Time	T _j =25°C, I _{SD} =20A, V _{GS} =0V	--	32	--	nS
Q _{rr}	Reverse Recovery Charge	di/dt=100A/μs		31		nC

NOTE:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Limited by T_{Jmax}, starting T_J = 25°C, L = 0.5mH, R_G = 25Ω, I_{AS} = 20A, V_{GS} = 10V. Part not recommended for use above this value
- ③ Pulse width ≤ 300μs; duty cycle ≤ 2%.

Typical Characteristics

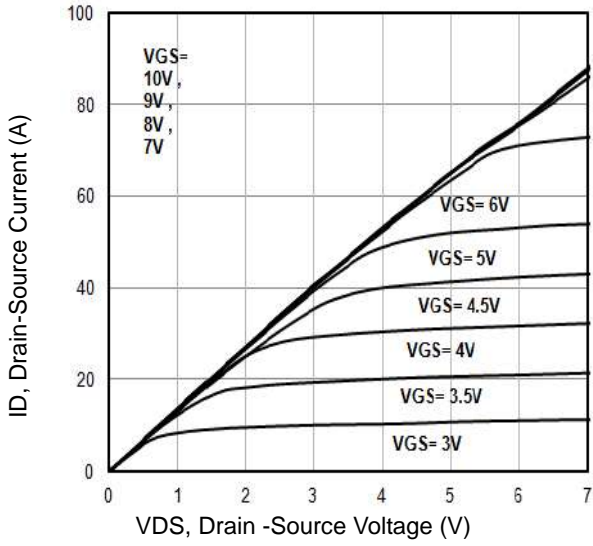


Fig1. Typical Output Characteristics

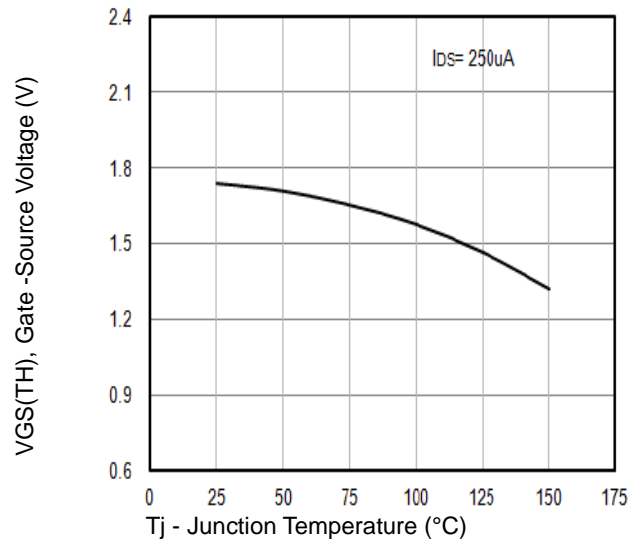


Fig2. $V_{GS(TH)}$ vs. T_j

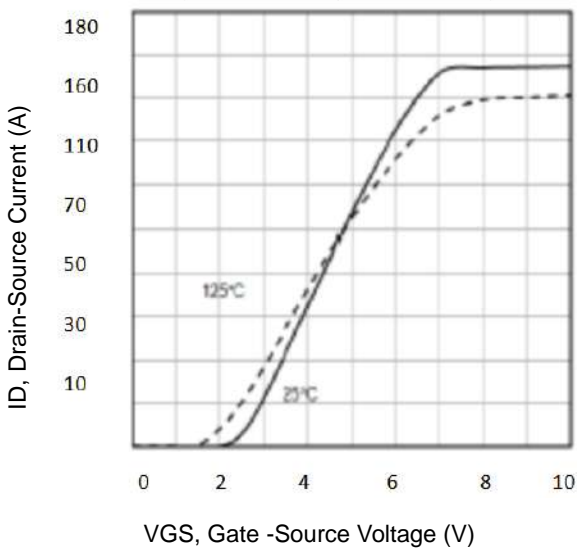


Fig3. Typical Transfer Characteristics

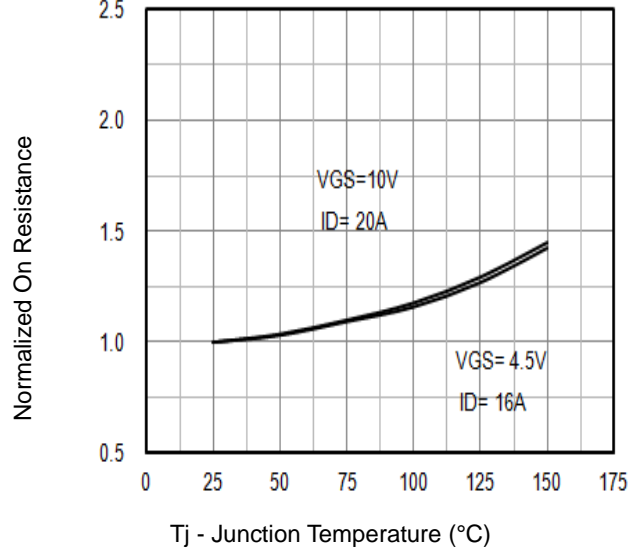


Fig4. Normalized On-Resistance vs. T_j

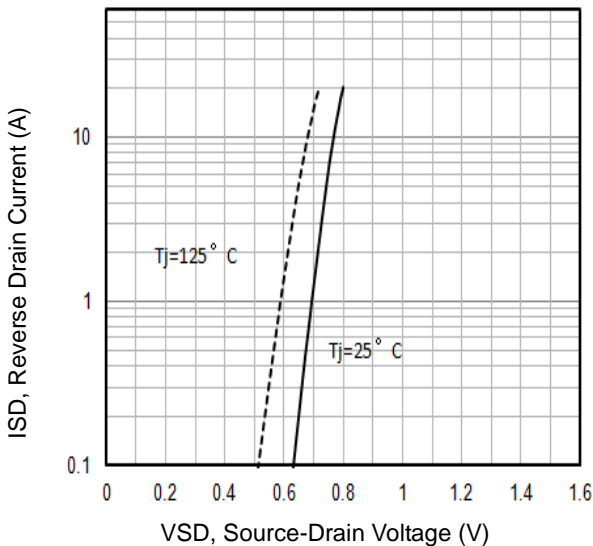


Fig5. Typical Source-Drain Diode Forward Voltage

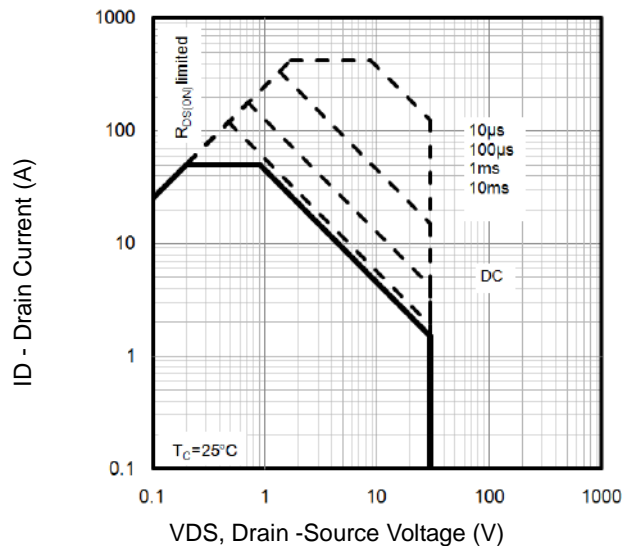


Fig6. Maximum Safe Operating Area



Typical Characteristics

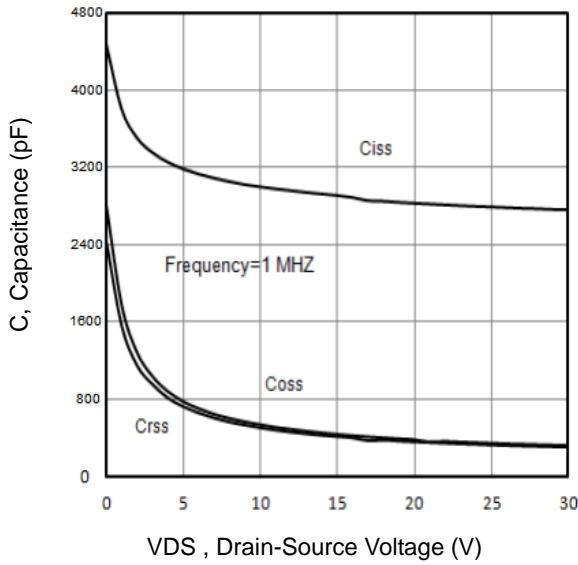


Fig7. Typical Capacitance Vs.Drain-Source Voltage

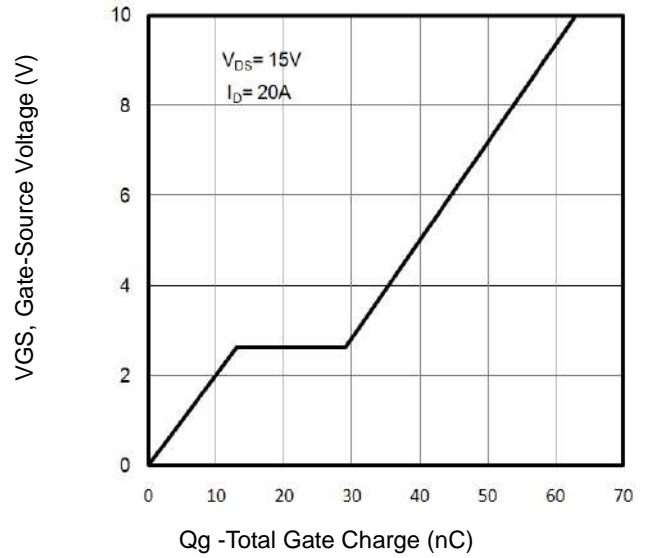


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

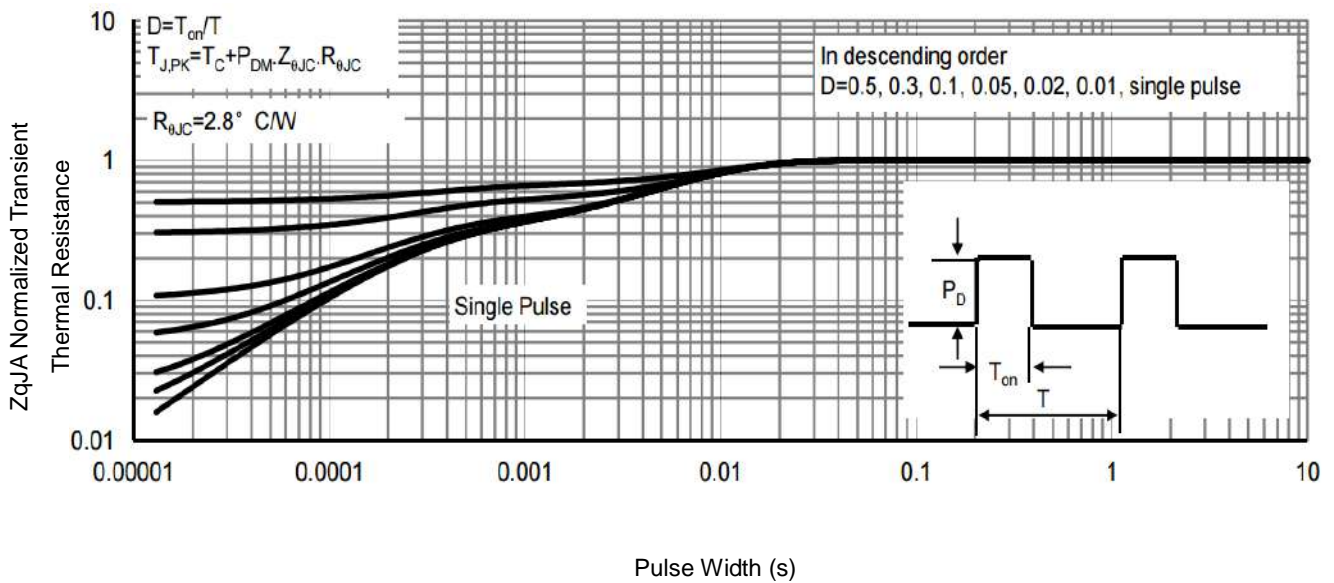


Fig9. Normalized Maximum Transient Thermal Impedance

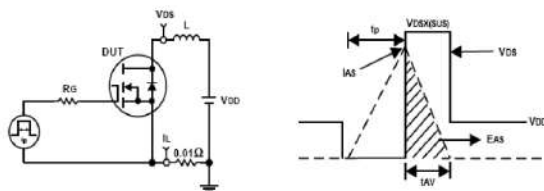


Fig10. Unclamped Inductive Test Circuit and waveforms

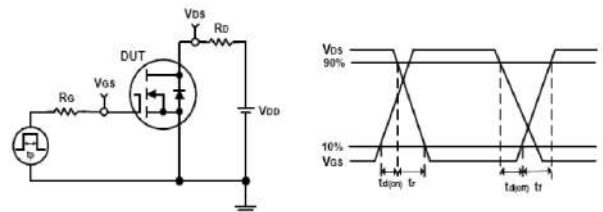
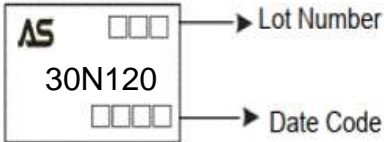


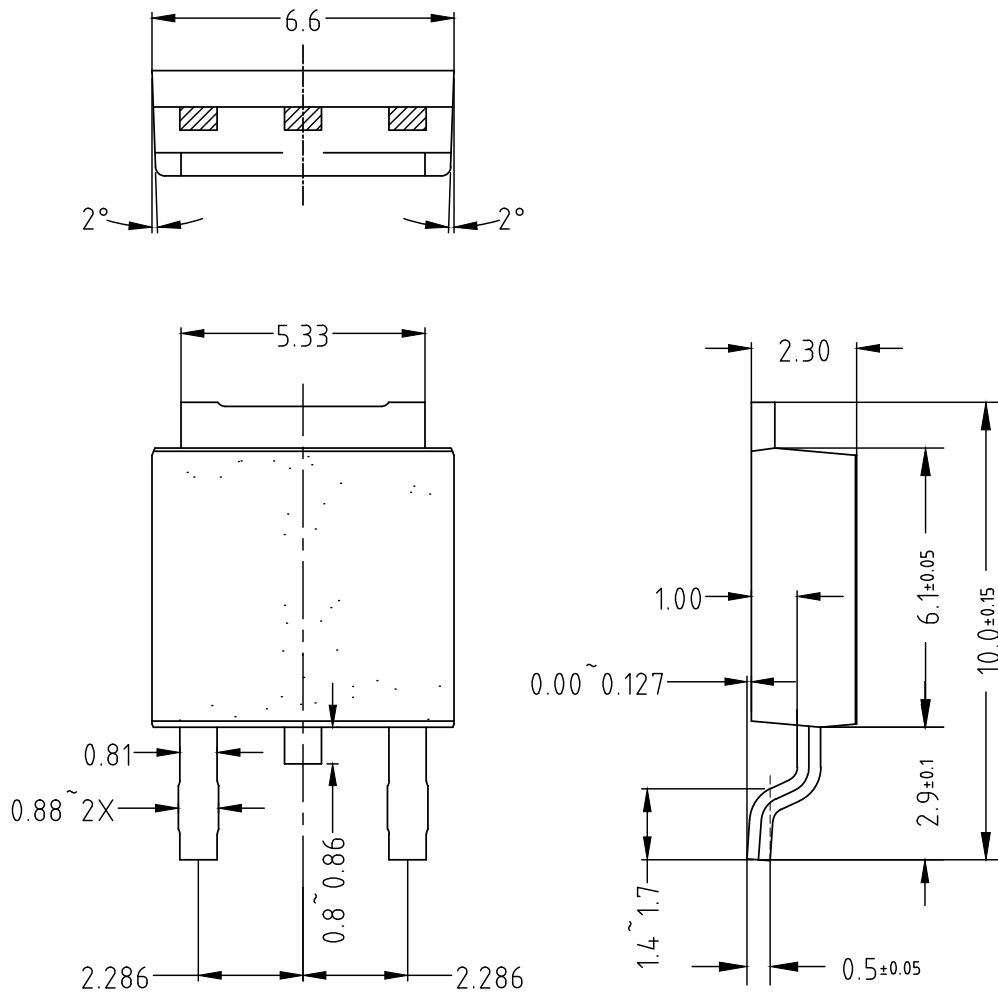
Fig11. Switching Time Test Circuit and waveforms

Ordering and Marking Information

Ordering Device No.	Marking	Package	Packing	Quantity
ASDM30N120KQ-R	30N120	TO-252	Tape&Reel	2500/Reel

PACKAGE	MARKING
TO-252	 <p>The diagram shows a rectangular marking area on a TO-252 package. It contains the following elements from top to bottom: the logo 'AS', three empty boxes for the Lot Number, the part number '30N120', and four empty boxes for the Date Code. Arrows point from the Lot Number and Date Code boxes to their respective labels.</p>

TO-252



IMPORTANT NOTICE

Xi'an Ascend Semiconductor incorporated MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Xi'an Ascend Semiconductor Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Xi'an Ascend Semiconductor Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Xi'an Ascend Semiconductor Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume .

all risks of such use and will agree to hold Ascendsemi Incorporated and all the companies whose products are represented on Xi'an Ascend Semiconductor Incorporated website, harmless against all damages.

Xi'an Ascend Semiconductor Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Xi'an Ascend Semiconductor Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Xi'an Ascend Semiconductor Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

www.ascendsemi.com

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MOSFET](#) category:

Click to view products by [Ascend](#) manufacturer:

Other Similar products are found below :

[614233C](#) [648584F](#) [IRFD120](#) [IRFF430](#) [JANTX2N5237](#) [2N7000](#) [FCA20N60_F109](#) [FDZ595PZ](#) [AOD464](#) [2SK2267\(Q\)](#) [2SK2545\(Q,T\)](#)
[405094E](#) [423220D](#) [MIC4420CM-TR](#) [VN1206L](#) [614234A](#) [715780A](#) [SSM6J414TU,LF\(T](#) [751625C](#) [PSMN4R2-30MLD](#)
[TK31J60W5,S1VQ\(O](#) [2SK2614\(TE16L1,Q\)](#) [DMN1017UCP3-7](#) [EFC2J004NUZTDG](#) [FCAB21350L1](#) [P85W28HP2F-7071](#) [DMN1053UCP4-7](#)
[NTE2384](#) [NTE2969](#) [NTE6400A](#) [DMN2080UCB4-7](#) [DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [SSM6P54TU,LF](#) [DMP22D4UFO-](#)
[7B](#) [IPS60R3K4CEAKMA1](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#) [STF5N65M6](#) [STU5N65M6](#) [C3M0021120D](#) [DMN13M9UCA6-7](#)
[BSS340NWH6327XTSA1](#) [MCM3400A-TP](#) [DMTH10H4M6SPS-13](#) [IRF40SC240ARMA1](#) [IPS60R1K0PFD7SAKMA1](#)
[IPS60R360PFD7SAKMA1](#) [IPS60R600PFD7SAKMA1](#)