

PJD60R900S / PJP60R900S / PJF60R900S

600V N-Channel Enhancement Mode MOSFET

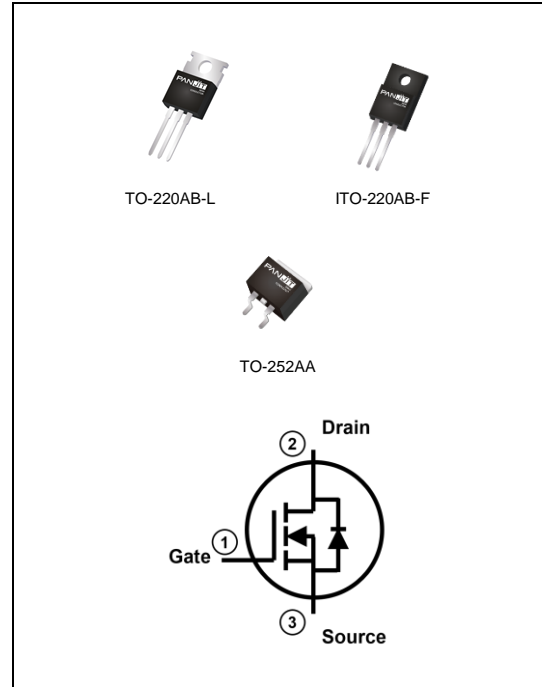
Voltage	600 V	Current	4.5 A
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Features

- $R_{DS(ON)}$, $V_{GS}@10V$, $I_D@2.5A < 0.9\Omega$
- High switching speed
- Low gate input resistance
- Low input capacitance and gate charge
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : TO-252AA, TO-220AB-L, ITO-220AB-F Package
- Terminals : Solderable per MIL-STD-750, Method 2026
- TO-252AA Approx. Weight : 0.3217 grams
- TO-220AB-L Approx. Weight : 2.0948 grams
- ITO-220AB-F Approx. Weight : 2 grams



Maximum Ratings and Thermal Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER		SYMBOL	TO-252AA	TO-220AB-L	ITO-220AB-F	UNITS
Drain-Source Voltage		V_{DS}	600			
Gate-Source Voltage		V_{GS}	± 25			
Continuous Drain Current ^(Note 4)	$T_C=25^\circ\text{C}$	I_D	4.5			A
	$T_C=100^\circ\text{C}$		2.9			
Pulsed Drain Current ^(Note 1)	$T_C=25^\circ\text{C}$	I_{DM}	20			
Power Dissipation	$T_C=25^\circ\text{C}$	P_D	45	45	20	W
	$T_C=100^\circ\text{C}$		17	17	8	
Single Pulse Avalanche Energy ^(Note 6)		E_{AS}	120			mJ
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150			$^\circ\text{C}$
Typical Thermal Resistance ^(Note 5)	Junction to Case	$R_{\theta JC}$	2.8	2.8	6.5	$^\circ\text{C/W}$
	Junction to Ambient	$R_{\theta JA}$	62.5			

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Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	600	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	2	3.6	4	
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =2.5A	-	0.75	0.9	Ω
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =600V, V _{GS} =0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±25V, V _{DS} =0V	-	-	±100	nA
Dynamic (Note 7)						
Total Gate Charge	Q _g	V _{DS} =480V, I _D =2.5A, V _{GS} =10V(Note 2,3)	-	14	-	nC
Gate-Source Charge	Q _{gs}		-	2	-	
Gate-Drain Charge	Q _{gd}		-	7	-	
Input Capacitance	C _{iss}	V _{DS} =480V, V _{GS} =0V, f=1.0MHZ	-	360	-	pF
Output Capacitance	C _{oss}		-	19	-	
Reverse Transfer Capacitance	C _{rss}		-	11	-	
Gate resistance	R _g	f=1.0MHZ	-	2.6	-	Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} =480V, I _D =2.5A, V _{GS} =10V, R _G =25Ω (Note 2,3)	-	15	-	ns
Turn-On Rise Time	t _r		-	29	-	
Turn-Off Delay Time	t _{d(off)}		-	61	-	
Turn-Off Fall Time	t _f		-	31	-	
Drain-Source Diode						
Diode Forward Current	I _s	---	-	-	4.5	A
Diode Forward Voltage	V _{SD}	I _s =5A, V _{GS} =0V	-	0.9	1.3	V
Reverse Recovery Time	T _{rr}	V _{GS} =0V, I _s =2.5A	-	182	-	ns
Reverse Recovery Charge	Q _{rr}	di _s /dt=100A/us(Note 2,3)	-	1.3	-	uC

NOTES :

1. Pulse width ≤ 300us, Duty cycle ≤ 2%.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J=25°C.
4. The maximum current rating is package limited.
5. R_{θJA} is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. Mounted on a 1 inch² with 2oz.square pad of copper.
6. The test condition is L=60mH, I_{AS}=2A, R_G=25 ohm, Starting T_J=25°C.
7. Guaranteed by design, not subject to production testing.

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TYPICAL CHARACTERISTIC CURVES

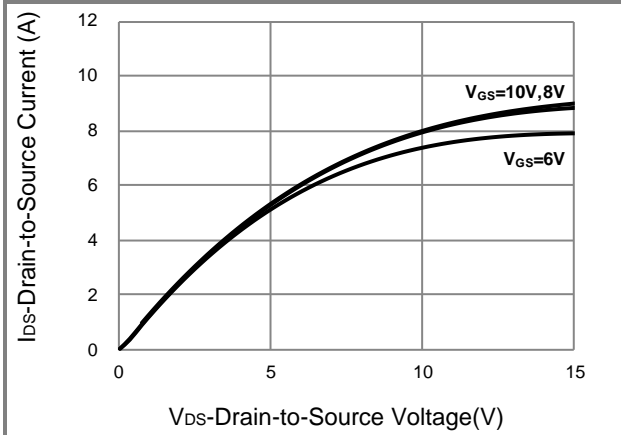


Fig.1 Output Characteristics

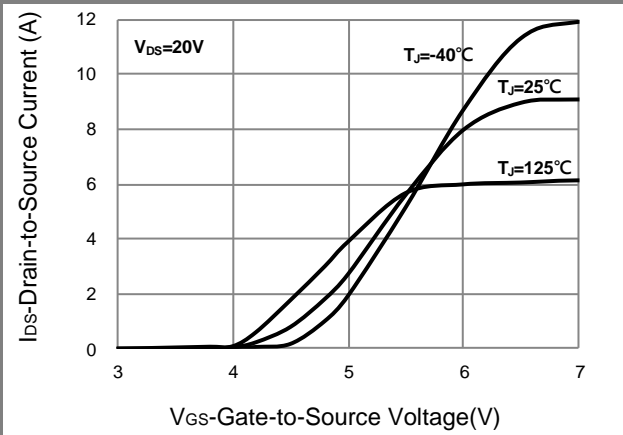


Fig.2 Transfer Characteristics

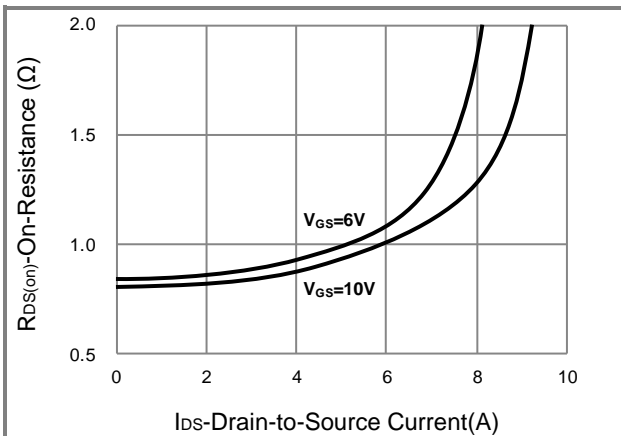


Fig.3 On-Resistance vs. Drain Current

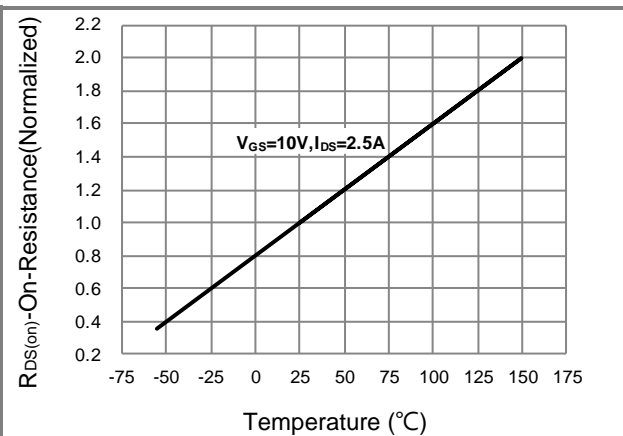


Fig.4 On-Resistance vs. Junction temperature

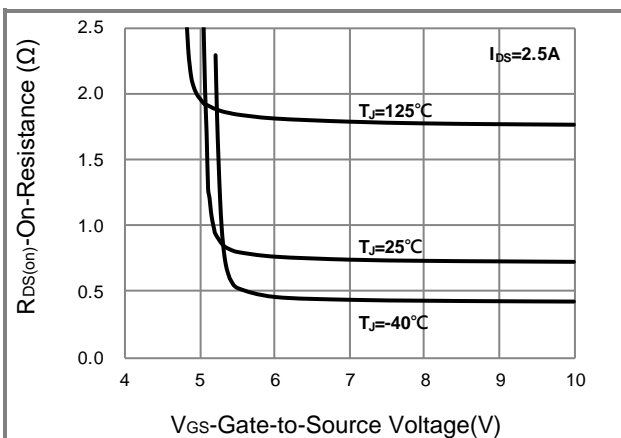


Fig.5 On-Resistance Variation with Vgs

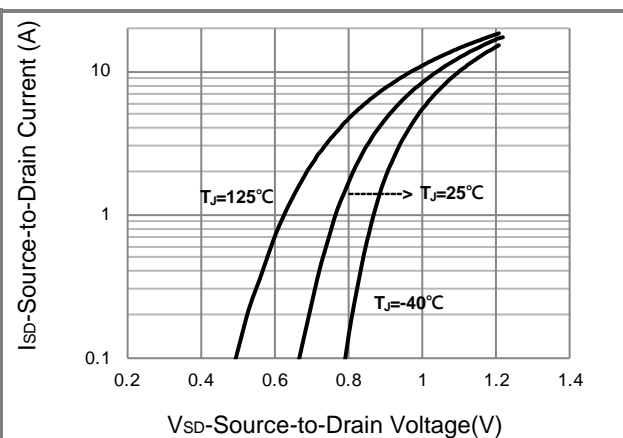


Fig.6 Body Diode Characteristic

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TYPICAL CHARACTERISTIC CURVES

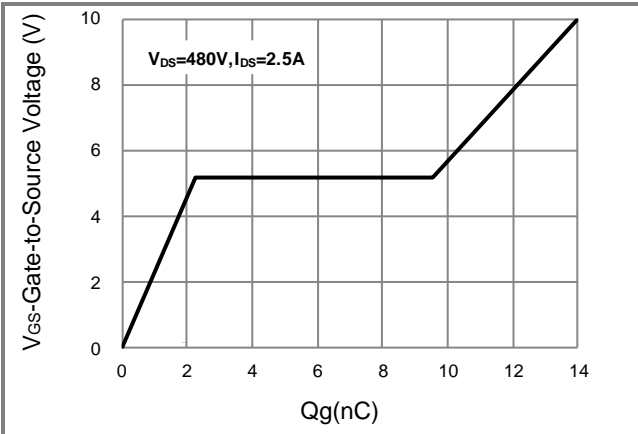


Fig.7 Gate-Charge Characteristics

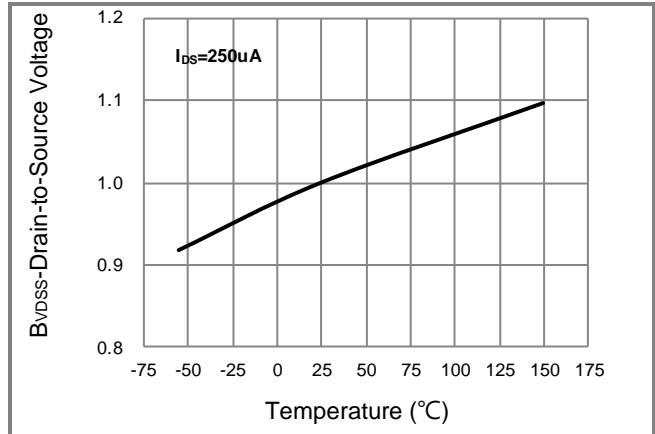


Fig.8 Breakdown Voltage Variation vs. Temperature

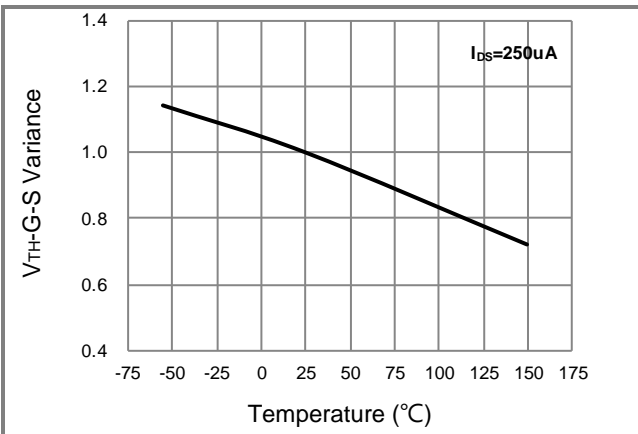


Fig.9 Threshold Voltage Variation with Temperature

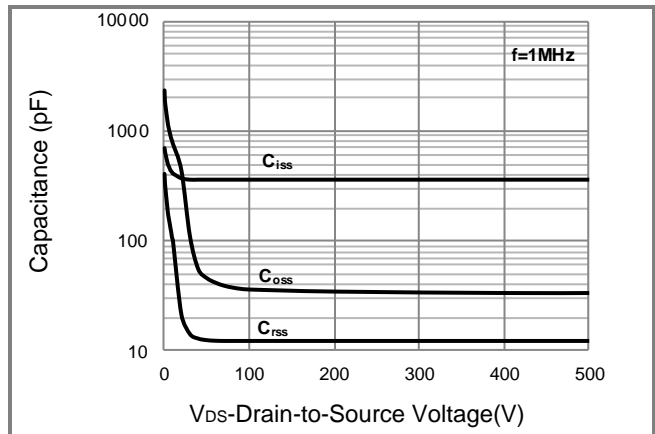


Fig.10 Capacitance vs. Drain-Source Voltage

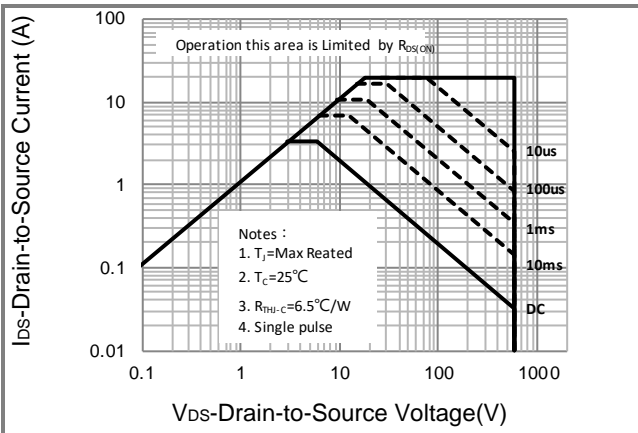


Fig.11 Maximum Safe Operating Area

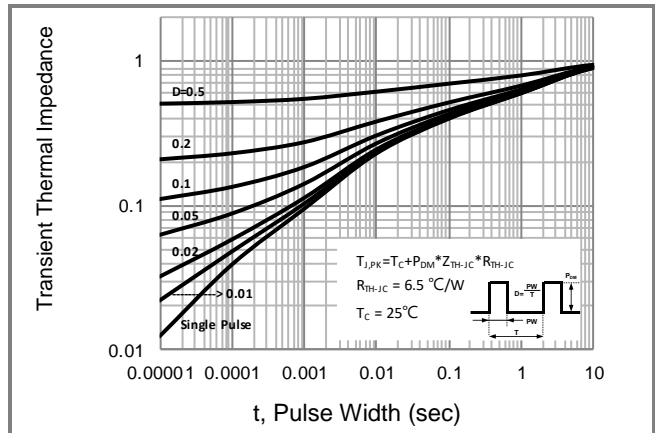


Fig.12 Normalized Transient Thermal Impedance

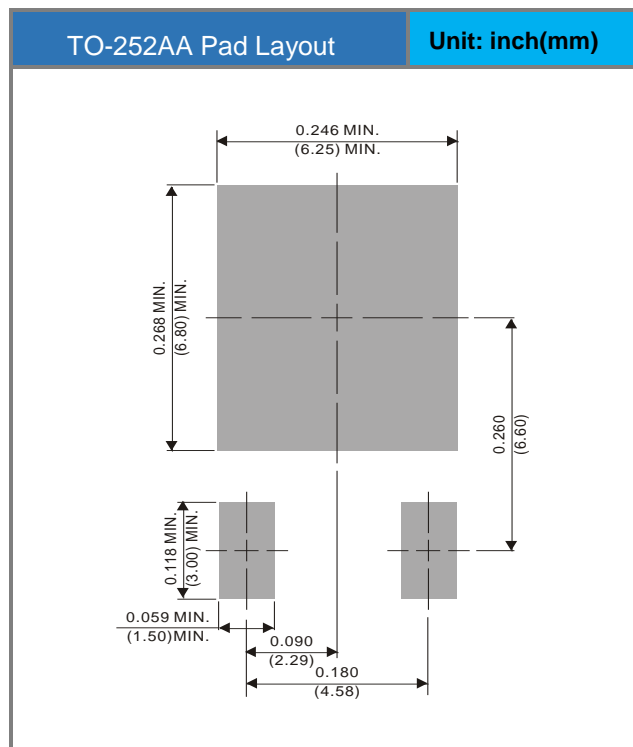
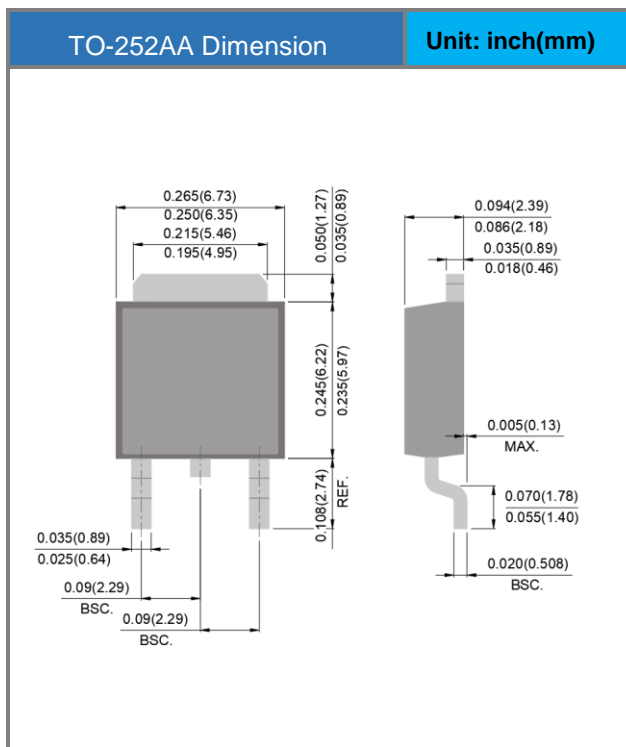
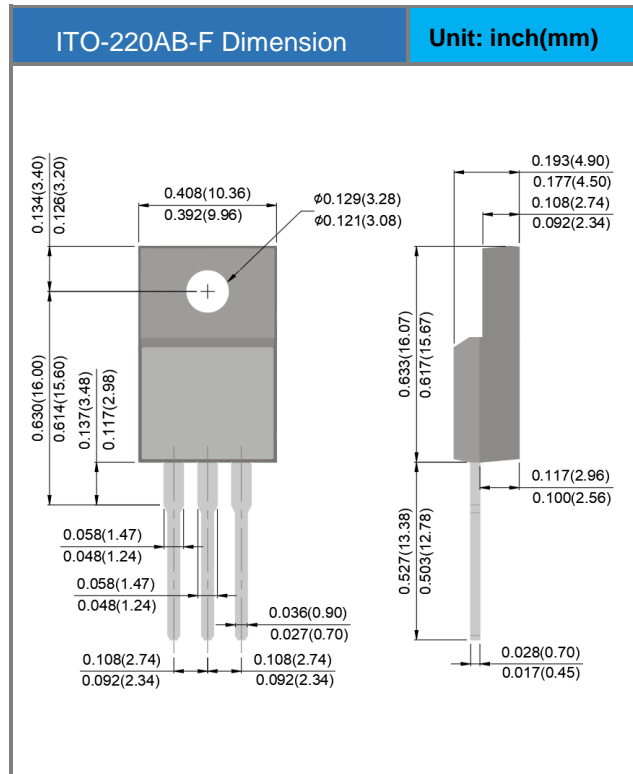
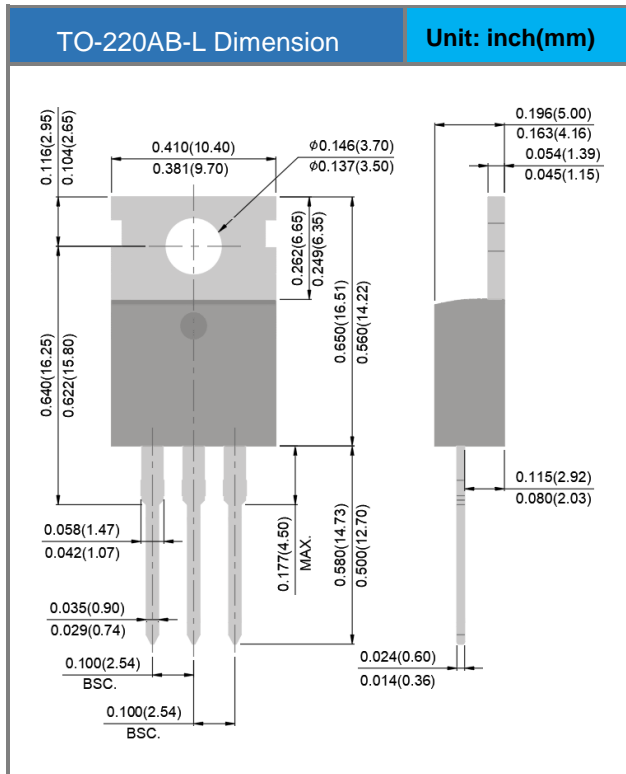
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Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PJD60R900S	TO-252AA	3K pcs / 13" reel	60R900S
PJP60R900S	TO-220AB-L	50pcs / Tube	60R900S
PJF60R900S	ITO-220AB-F	50pcs / Tube	60R900S

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Packaging Information & Mounting Pad Layout



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