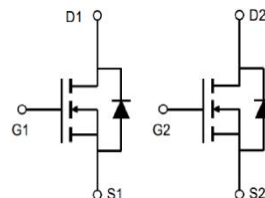
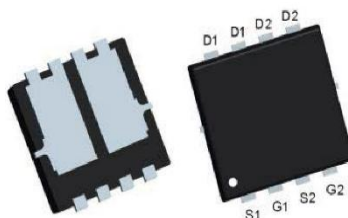


60V_{DS}/±20V_{GS} N-Channel Mode MOSFET

Features

- $V_{DS}=60V, I_D=20A$
- $R_{DS(ON)}=30m\Omega$ (TYP.) $V_{GS}=10V$
- Reliable and Rugged
- Avalanche Rated
- Low On-Resistance
- High Current Capability

PDFN3333



Applications

- Load Switch
- Power management in portable/desktop PCs
- DC/DC conversion

Ordering Information

Device	package	Device Marking	Package Qty.
JMSL0615AUD	PDFN3333	SL0615AUD	5000/PCS

Absolute Maximum Ratings ($T_C=25^\circ C$, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage ($V_{GS}=0V$)	V_{DS}	60	V
Gate-Source Voltage ($V_{GS}=0V$, static)	V_{GS}	±20	V
Continuous Drain Current ($T_C=25^\circ C$)	I_D	20	A
Continuous Drain Current ($T_C=100^\circ C$)		13	A
Pulsed Drain Current	I_{DM}	80	A
Single Pulsed Avalanche Energy	E_{AS}	38	mJ
Maximum Power Dissipation ($T_C=25^\circ C$)	P_D	30	W
Operating, Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ C$

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	-	-	1	μA
Gate -Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	-	-	2.5	V
Drain-Source On-stage Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=12A$	-	-	30	m Ω
		$V_{GS}=4.5V, I_D=10A$	-	-	40	

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	-	5	-	$^{\circ}\text{C}/\text{W}$
Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	-	62	-	$^{\circ}\text{C}/\text{W}$

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	$V_{DS}=15\text{V}$ $V_{GS}=0\text{V}$ $f=1\text{MHz}$	-	1060	-	pF
Output capacitance	C_{oss}		-	64	-	
Reverse transfer capacitance	C_{rss}		-	54	-	
Gate Resistance	R_g	$f=1\text{MHz}$	-	-	-	Ω
Total Gate Charge	Q_g	$V_{DS}=15\text{V}$ $V_{GS}=10\text{V}$ $I_D=12\text{A}$	-	26	-	nC
Gate Source Charge	Q_{gs}		-	5.7	-	
Gate Drain Charge	Q_{gd}		-	5.2	-	
Turn-on delay Time	$t_{d(on)}$	$V_{GS}=10\text{V}$ $V_{DS}=15\text{V}$ $R_L=0.75\Omega$ $R_G=3\Omega$	-	8.4	-	ns
Rise time	t_r		-	8.5	-	
Turn-off delay Time	$t_{d(off)}$		-	36	-	
Fall time	t_f		-	5	-	

Reverse Diode Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Body Diode Forward Voltage	V_{SD}	$V_{GS}=0\text{V}, I_{SD}=1\text{A}$	-	-	1.2	V
Reverse Recovery Time	t_{rr}	$V_{GS}=0\text{V}, I_{SD}=12\text{A}$ $dI/dt=500\text{A}/\mu\text{s}$	-	18	-	ns
Reverse Recovery Charge	Q_{rr}		-	13	-	nC

Electrical Characteristics Diagrames

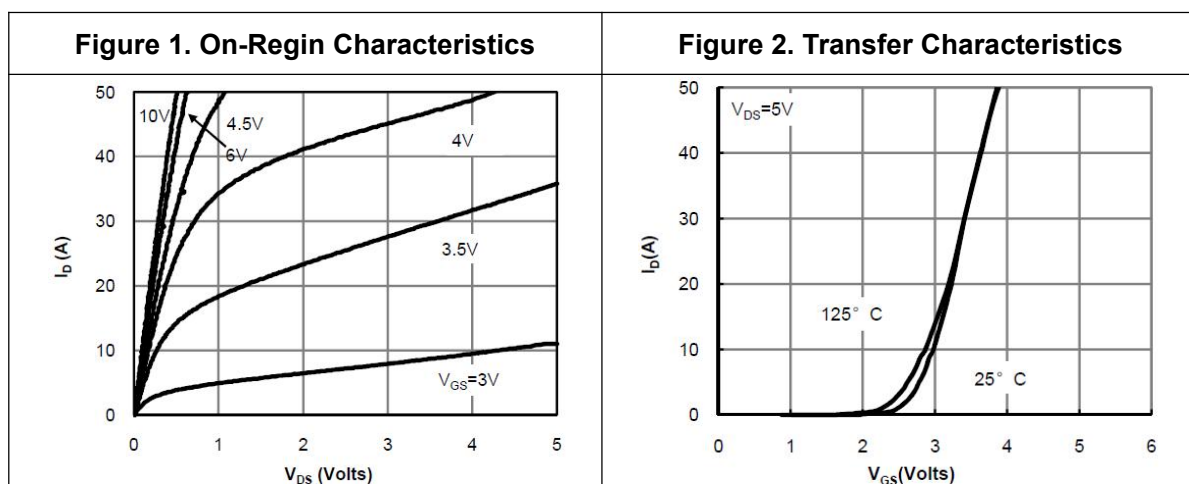


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

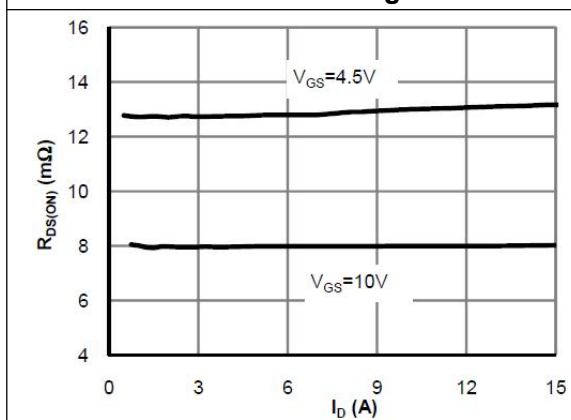


Figure 4. On-Resistance vs. Junction Temperature

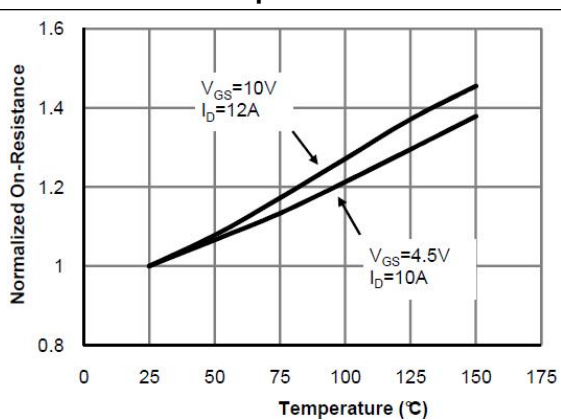


Figure 5. On-Resistance vs. Gate-Source Voltage

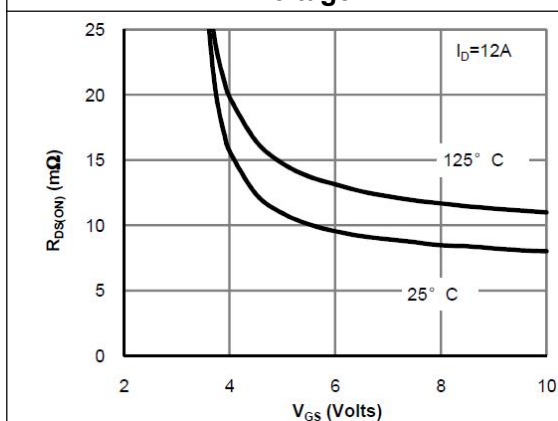


Figure 6. Body-Diode Characteristics

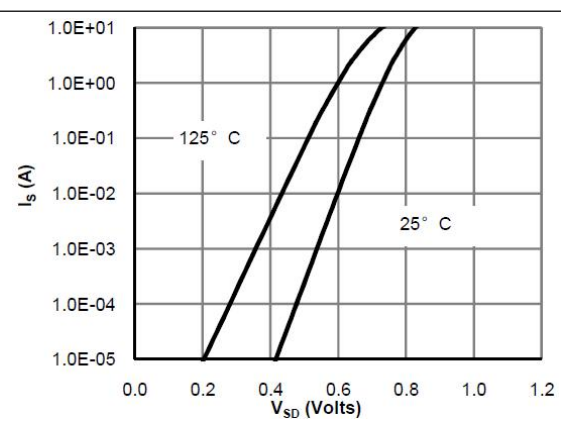


Figure 7. Gate-Charge Characteristics

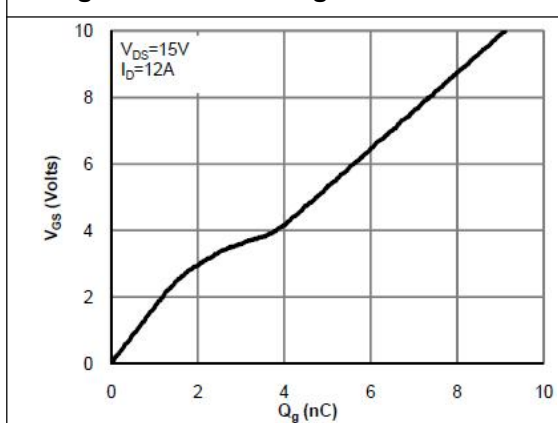


Figure 8. Capacitance Characteristics

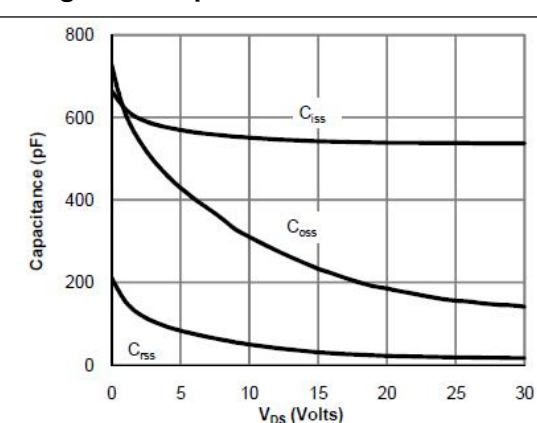


Figure 9. Maximum Forward Biased Safe Operating Area

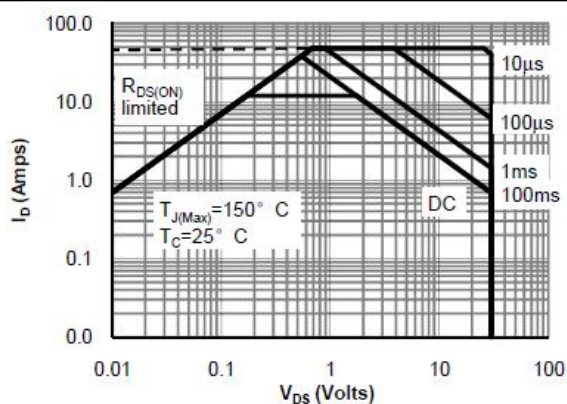


Figure 10. Single Pulse Power Rating Junction-to-Case

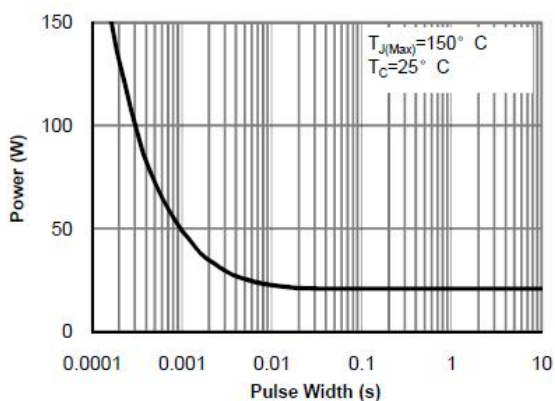
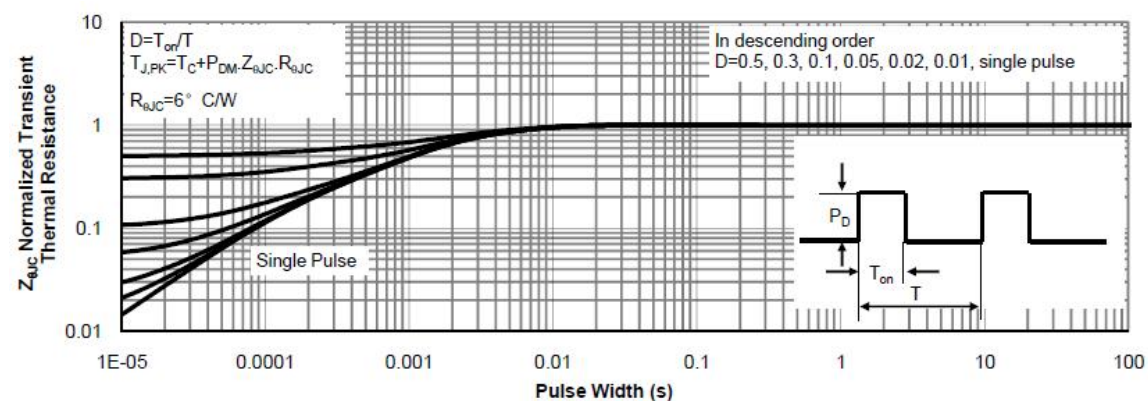


Figure 11. Normalized Maximum Transient Thermal Impedance



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