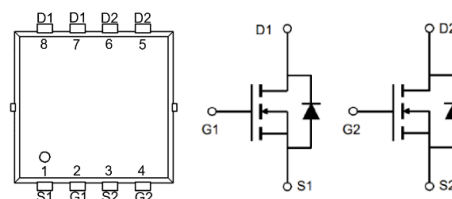
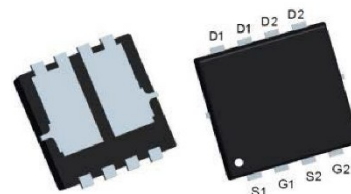


30V_{DS}/±20V_{GS} N-Channel Mode MOSFET

Features

- $V_{DS}=30V, I_D=35A$
- $R_{DS(ON)}=13m\Omega$ (TYP.) $V_{GS}=10V$
- $R_{DS(ON)}=16m\Omega$ (TYP.) $V_{GS}=4.5V$
- Reliable and Rugged
- Low Gate Charge and On-Resistance
- High Current Capability

PDFN3333



Applications

- DC/DC Converters in Computing, Servers, and POL
- Isolated DC/DC Converters in Telecom and Industrial

Ordering Information

Device	package	Device Marking	Package Qty.
CJBD3020	PDFN3333	CJBD3020	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}	30	V
Gate-Source Voltage ($V_{GS}=0V$, static)	V_{GS}	±20	V
Continuous Drain Current ($T_C=25^{\circ}C$)	I_D	35	A
Continuous Drain Current ($T_C=100^{\circ}C$)		23	A
Pulsed Drain Current	I_{DM}	100	A
Single Pulsed Avalanche Energy	E_{AS}	90	mJ
Maximum Power Dissipation ($T_C = 25^{\circ}C$)	P_D	58	W
Maximum Power Dissipation ($T_C = 100^{\circ}C$)		10	W
Operating, Storage Temperature Range	T_J, T_{STG}	-55~150	$^{\circ}C$

Thermal Characteristics

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

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30	-	-	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	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.3	1.8	2.3	V
Drain-Source On-stage Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=12A$	-	11	14	m Ω
		$V_{GS}=4.5V, I_D=10A$	-	14	20	

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	$V_{DS}=15V$	-	1000	-	pF
Output capacitance	C_{oss}	$V_{GS}=0V$	-	181	-	
Reverse transfer capacitance	C_{rss}	$f=1MHz$	-	164	-	
Gate Resistance	R_g	$f=1MHz$	-	1.9	-	Ω
Total Gate Charge	Q_g	$V_{DS}=15V$	-	17	-	nC
Gate Source Charge	Q_{gs}	$V_{GS}=10V$	-	2.8	-	
Gate Drain Charge	Q_{gd}	$I_D=12A$	-	3.9	-	
Turn-on delay Time	$t_{d(on)}$	$V_{GS}=10V$	-	5	-	ns
Rise time	t_r	$V_{DS}=15V$	-	12	-	
Turn-off delay Time	$t_{d(off)}$	$R_L=0.75\Omega$	-	19	-	
Fall time	t_f	$R_G=3\Omega$	-	6	-	

Reverse Diode Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Body Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=1A$	-	0.7	1.2	V
Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_{SD}=12A$	-	19	-	ns
Reverse Recovery Charge	Q_{rr}	$d_i/d_t=500A/\mu s$	-	10	-	nC

Electrical Characteristics Diagrames

Figure 1. On-Regin Characteristics

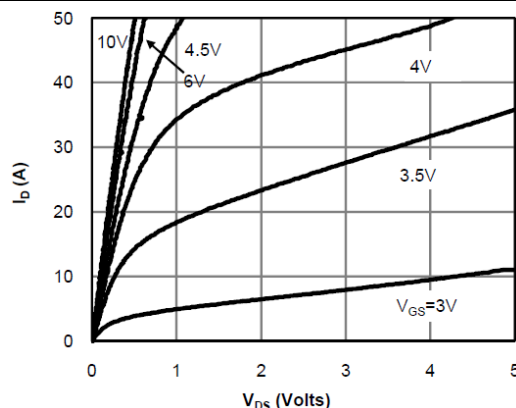


Figure 2. Transfer Characteristics

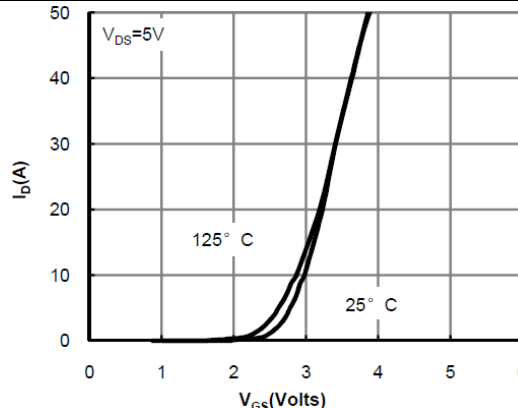


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

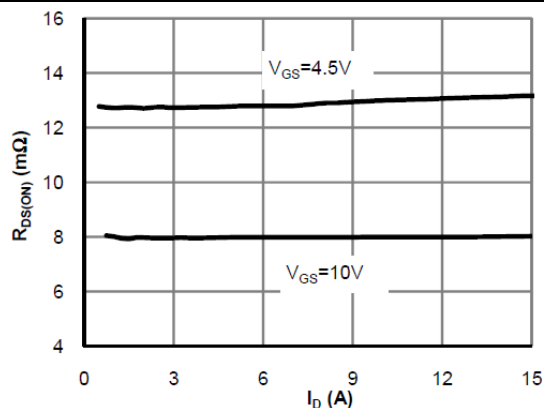


Figure 4. On-Resistance vs. Junction Temperature

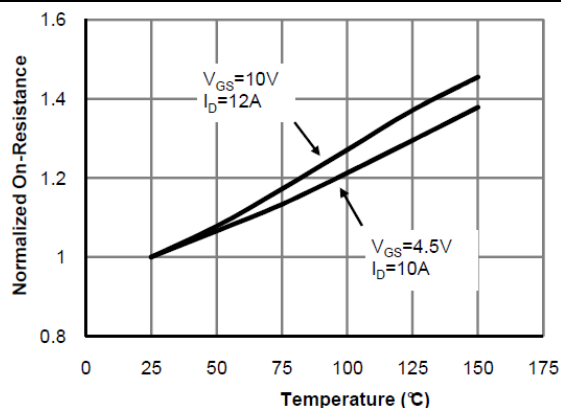


Figure 5. On-Resistance vs. Gate-Source Voltage

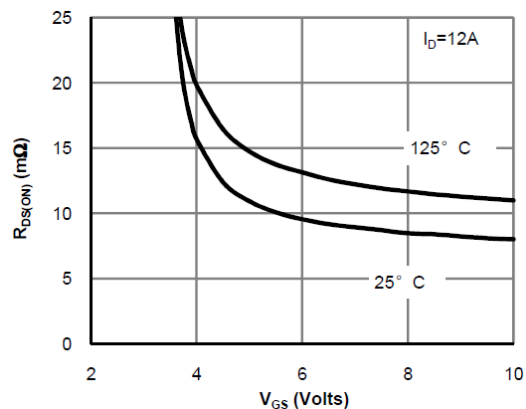


Figure 6. Body-Diode Characteristics

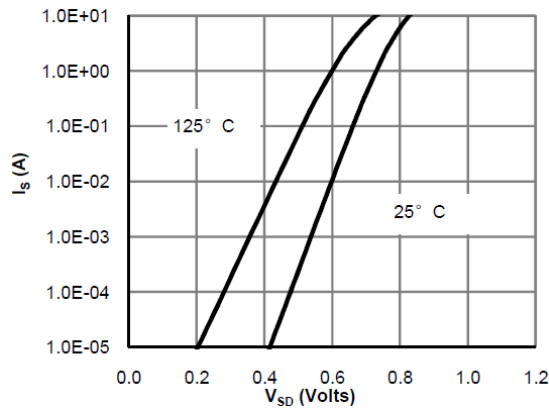


Figure 7. Gate-Charge Characteristics

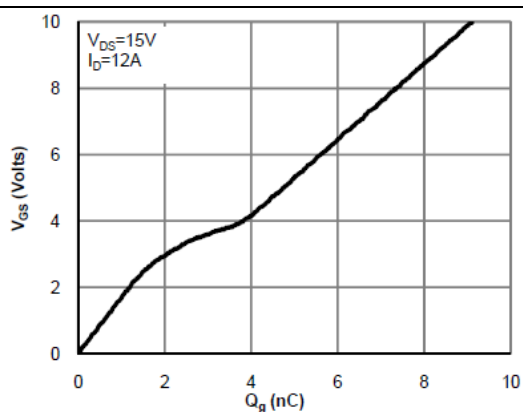


Figure 8. Capacitance Characteristics

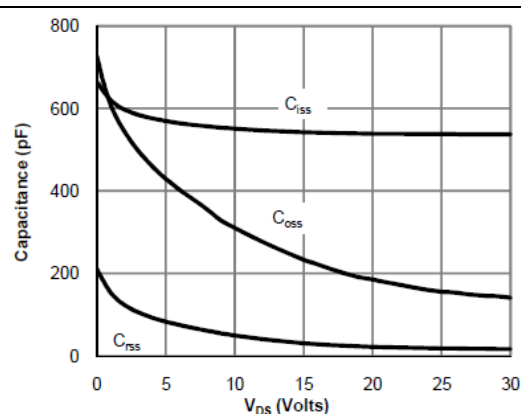


Figure 9. Maximum Forward Biased Safe Operating Area

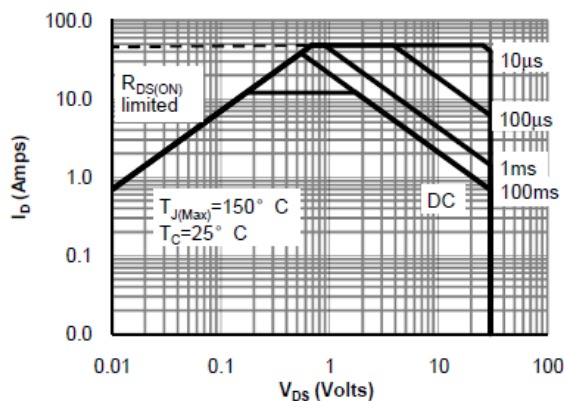


Figure 10. Single Pulse Power Rating Junction-to-Case

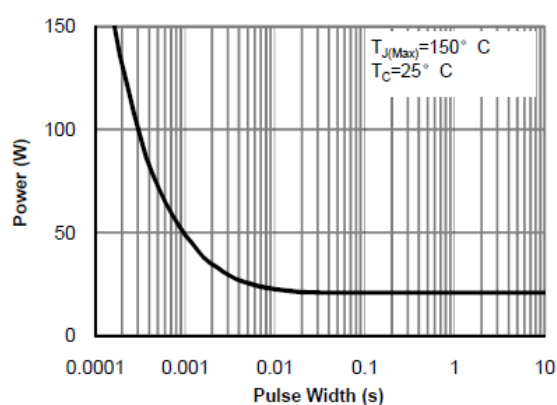


Figure 11. Normalized Maximum Transient Thermal Impedance

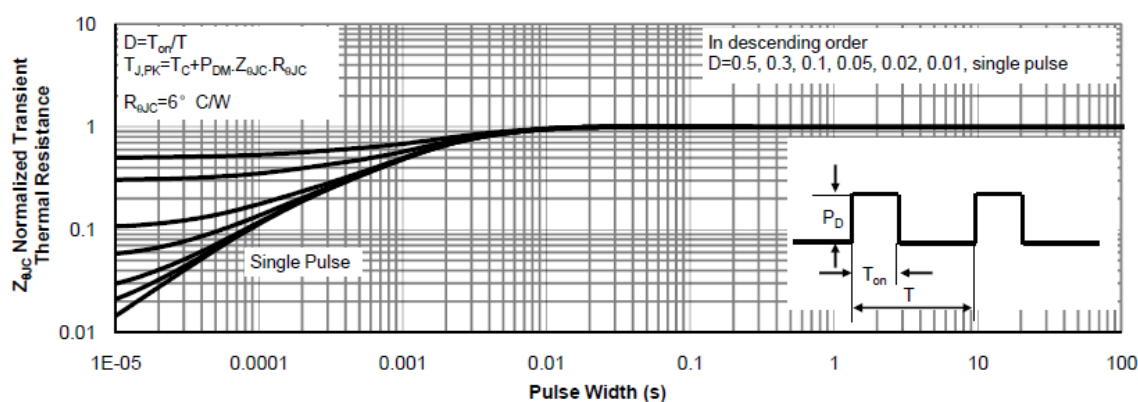


Figure 12. Power De-rating

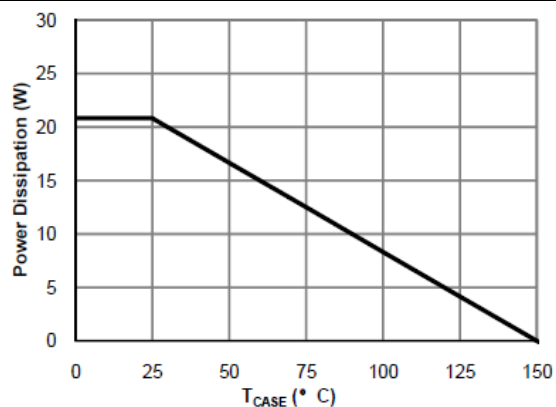


Figure 13. Current De-rating

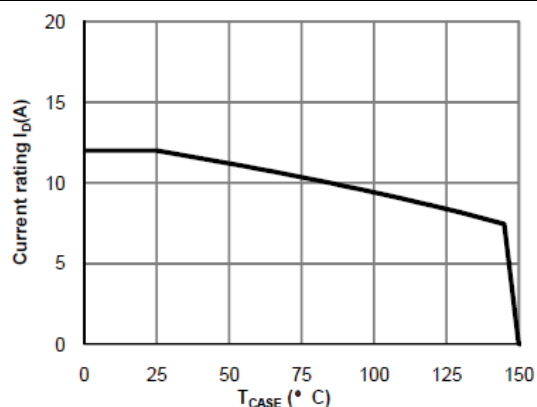


Figure 14. Single Pulse Power Rating Junction-to-Ambient

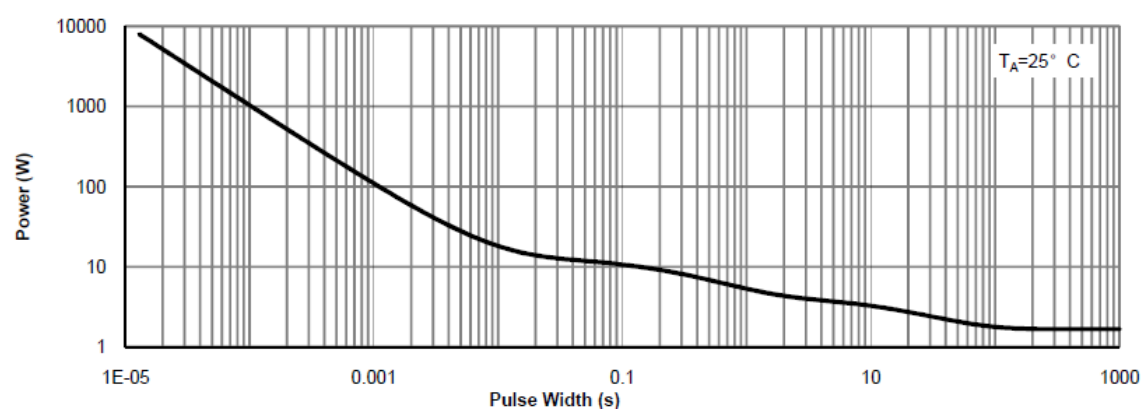
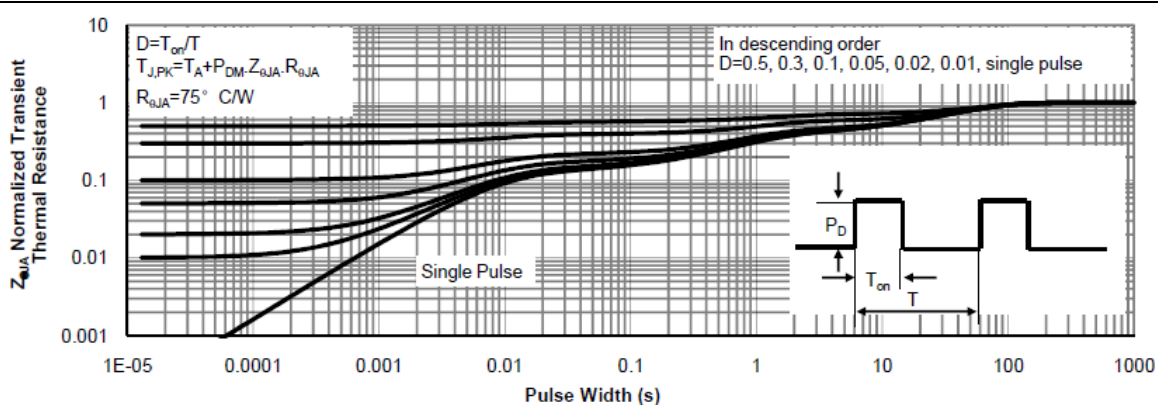
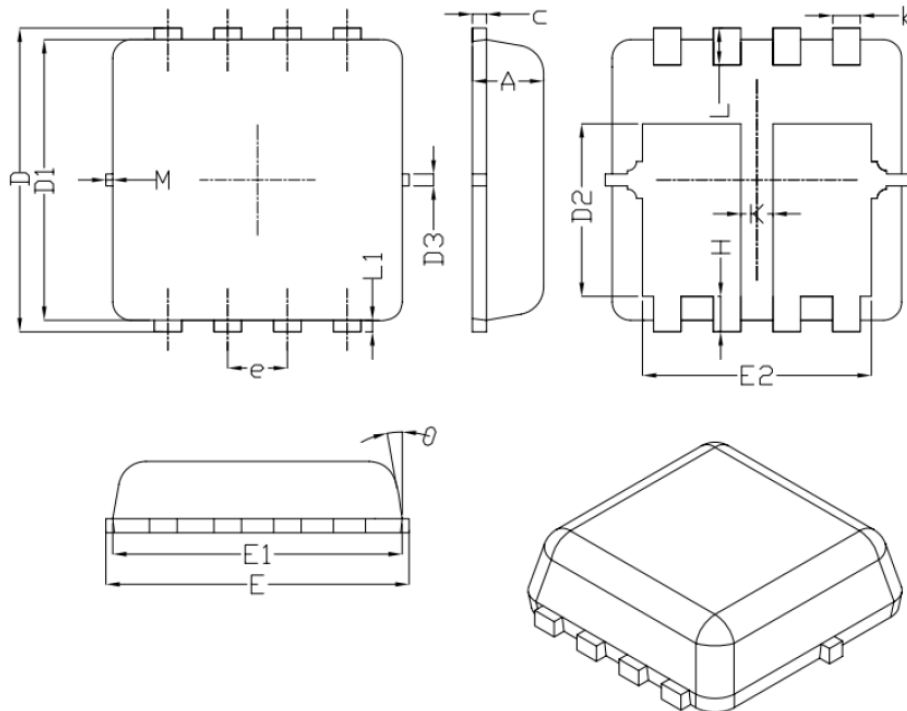


Figure 15. Normalized Maximum Transient Thermal Impedance



Physical Dimensions

PDFN3333



符号	尺寸			符号	尺寸		
	最小值	典型值	最大值		最小值	典型值	最大值
A	0.70	0.75	0.80	E2	2.39	2.49	2.59
b	0.25	0.30	0.35	e	0.65 BSC		
c	0.10	0.15	0.25	H	0.30	0.39	0.50
D	3.25	3.35	3.45	L	0.30	0.40	0.50
D1	3.00	3.10	3.20	L1	--	0.13	--
D2	1.78	1.88	1.98	K	0.30	--	--
D3	--	0.13	--	θ	--	10°	12°
E	3.20	3.30	3.40	M	*	*	0.15
E1	3.00	3.15	3.20	* Not Specified			

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