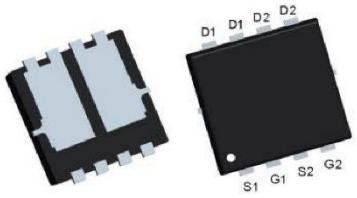
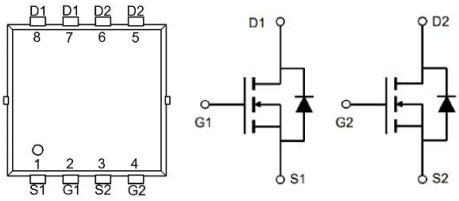
60V_{DS}/±20V_{GS} N-Channel Mode MOSFET

Features

- V_{DS}=60V,I_D=25A
- $R_{DS(ON)}$=18mΩ（TYP.）V_{GS}=10V
- $R_{DS(ON)}$=25mΩ（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.
DMT6018LDR	PDFN3333	6018	5000/PCS

Absolute Maximum Ratings (TC=25℃,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 (TC=25℃)	I_D	25	A
Continuous Drain Current (TC=100℃)		17	A
Pulesd Drain Current	I_{DM}	100	A
Single Pulsed Avalanche Energy	E_{AS}	10	mJ
Maximum Power Dissipation (TC =25℃)	P_D	22	W
Maximum Power Dissipation (TC =100℃)		10	W
Operating,Storage Temperature Range	T_J,T_{STG}	-55~150	℃

Thermal Characteristics

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

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V,I_D=250μA	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}=±20V, V_{DS}=0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS},I_D=250μA	1.3	1.8	2.3	V
Drain-Source On-stage Resistance	$R_{DS(ON)}$	V_{GS}=10V,I_D=12A	-	18	20	mΩ
		V_{GS}=4.5V,I_D=10A	-	25	28	

Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	V_{DS}=15V	-	550	-	pF
Output capacitance	C_{oss}	V_{GS}=0V	-	238	-	
Reverse transfer capacitance	C_{rss}	f=1MHz	-	33	-	
Gate Resistance	R_g	f=1MHz	-	1.9	-	Ω
Total Gate Charge	Q_g	V_{DS}=15V	-	9.2	-	nC
Gate Source Charge	Q_{gs}	V_{GS}=10V	-	2.3	-	
Gate Drain Charge	Q_{gd}	I_D=12A	-	1.8	-	
Turn-on delay Time	$t_{d(on)}$	V_{GS}=10V	-	4.2	-	ns
Rise time	t_r	V_{DS}=15V	-	3.6	-	
Turn-off delay Time	$t_{d(off)}$	R_L=0.75Ω	-	18.3	-	
Fall time	t_f	R_G=3Ω	-	3.3	-	

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	V
Reverse Recovery Time	t_{rr}	V_{GS}=0V,I_{SD}=12A	-	10.2	-	ns
Reverse Recovery Charge	Q_{rr}	d_i/d_t=500A/μs	-	11.5	-	nC

Electrical Characteristics Diagrames

Figure 1. On-Regin Characteristics

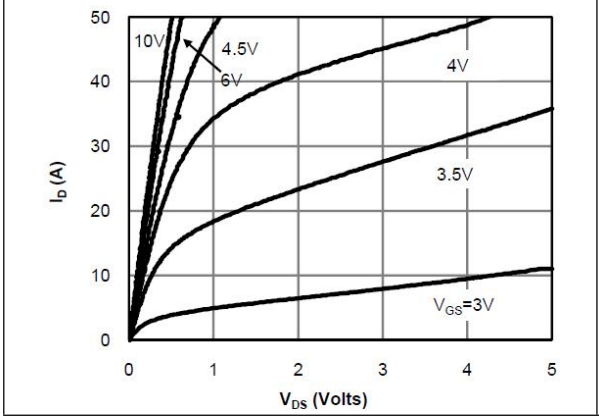


Figure 2. Transfer Characteristics

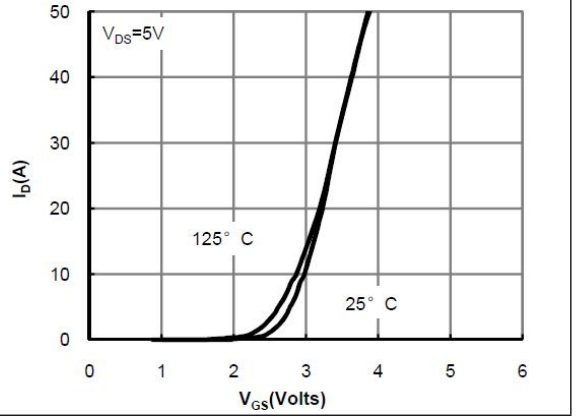


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

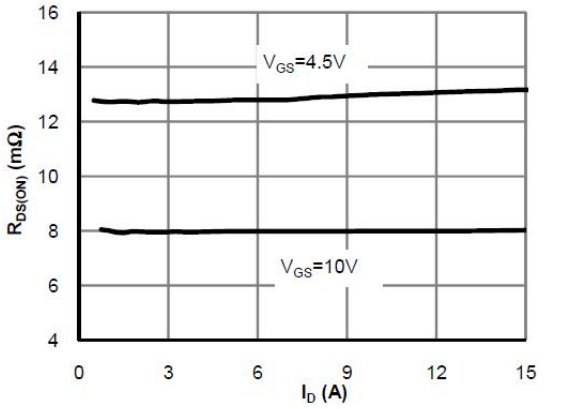


Figure 4. On-Resistance vs. Junction Temperature

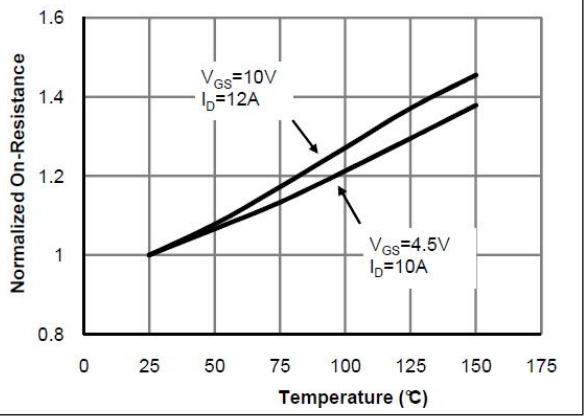


Figure 5. On-Resistance vs. Gate-Source Voltage

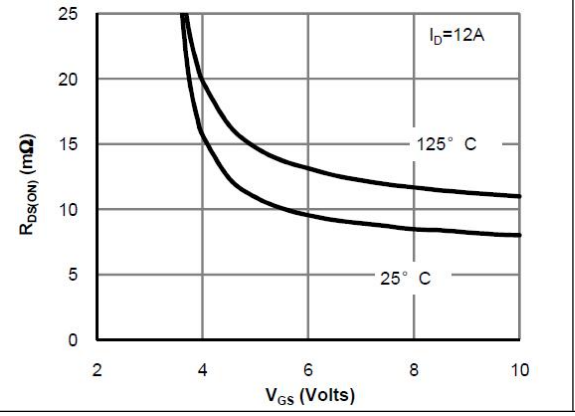


Figure 6. Body-Diode Characteristics

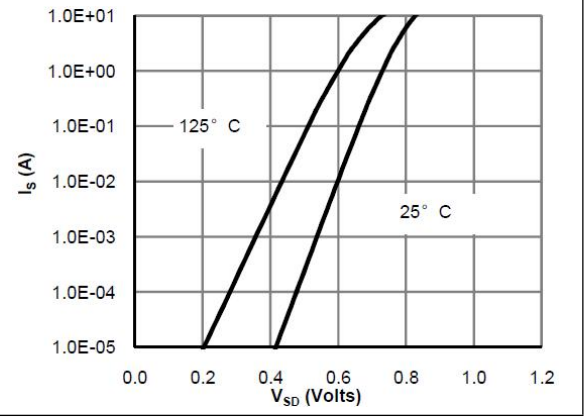


Figure 7. Gate-Charge Characteristics

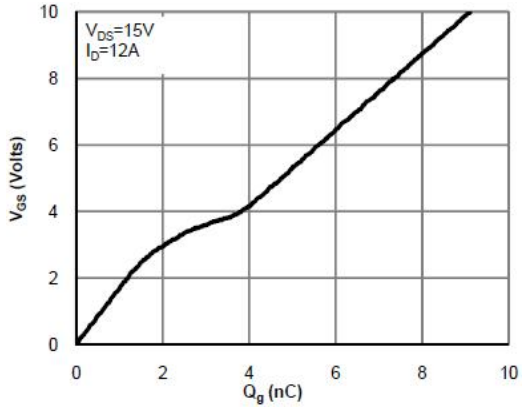


Figure 8. Capacitance Characteristics

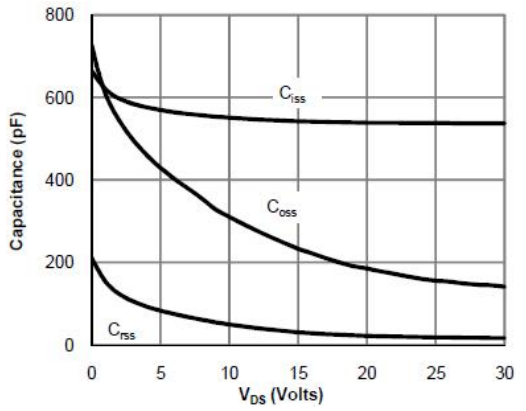


Figure 9. Maximum Forward Biased Safe Operating Area

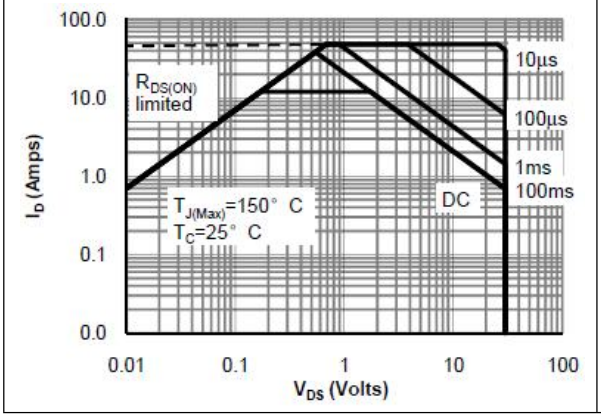


Figure 10. Single Pulse Power Rating Junction-to-Case

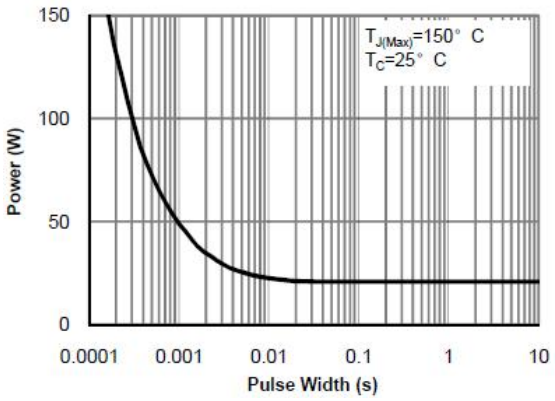


Figure 11. Normalized Maximum Transient Thermal Impedance

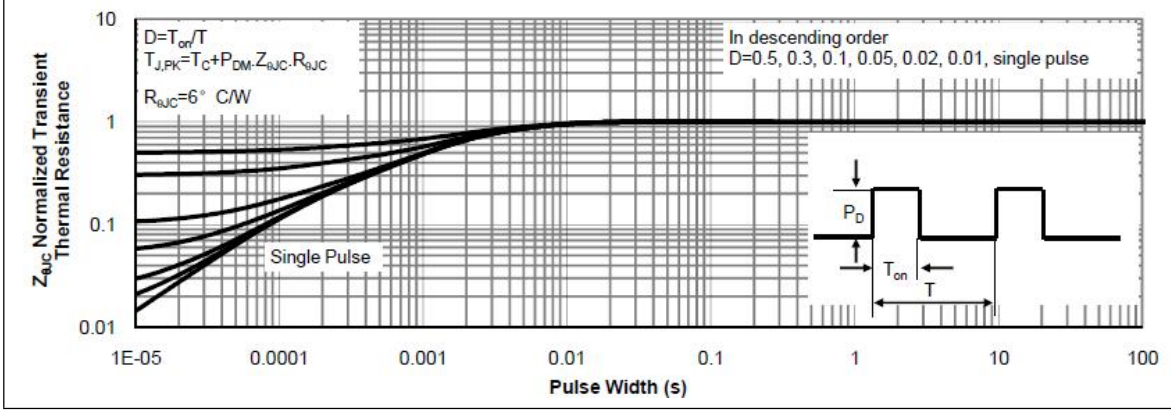


Figure 12. Power De-rating

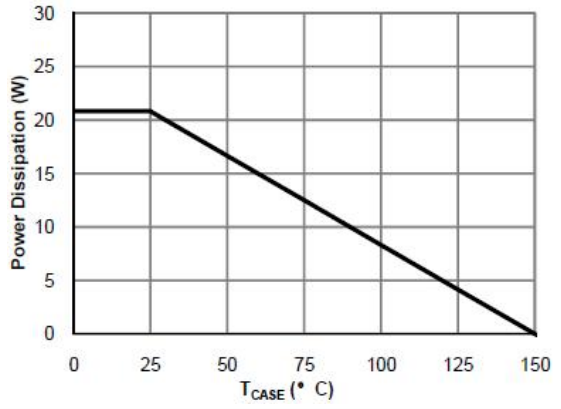


Figure 13. Current De-rating

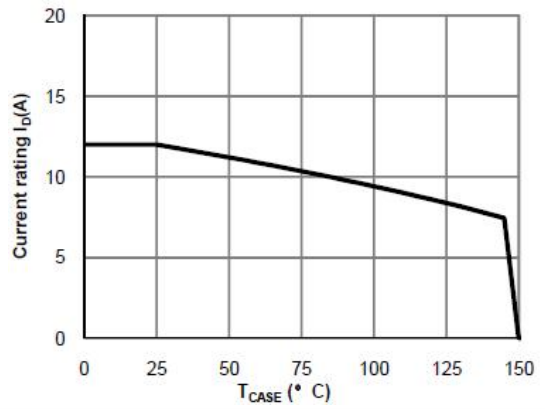


Figure 14. Single Pulse Power Rating Junction-to-Ambient

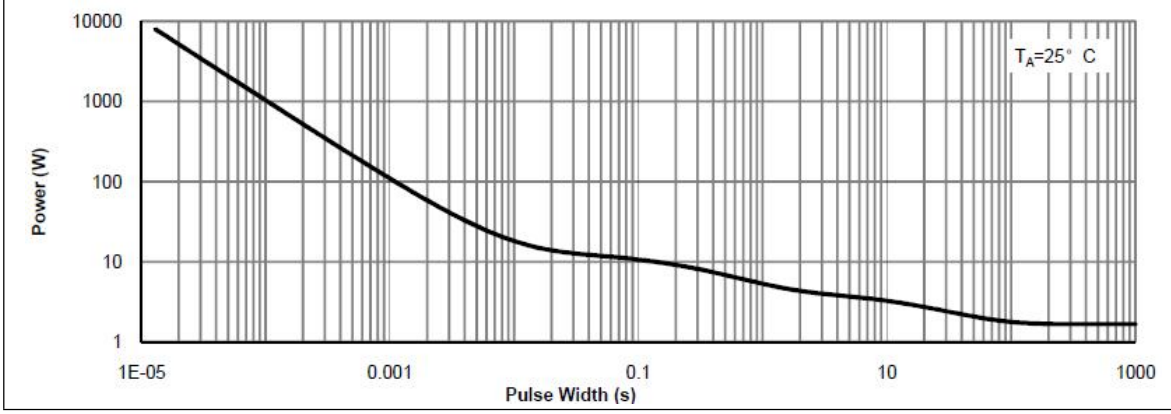
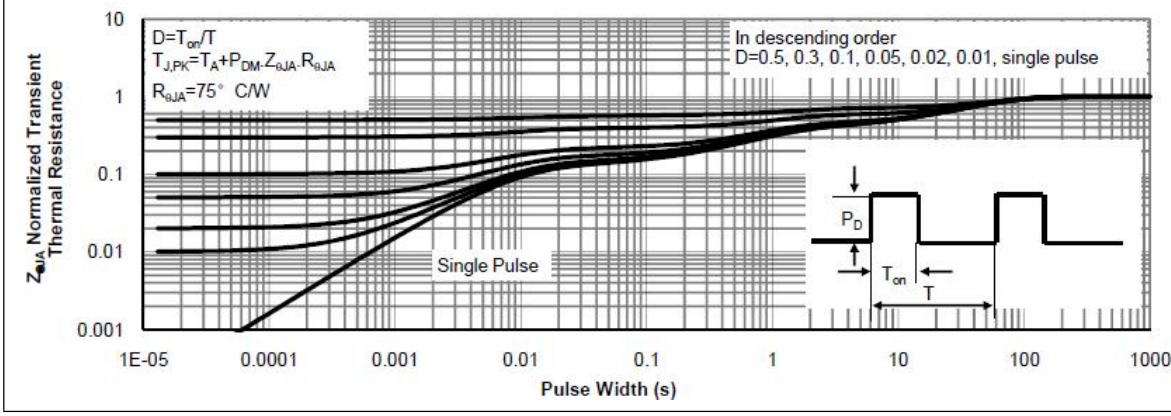
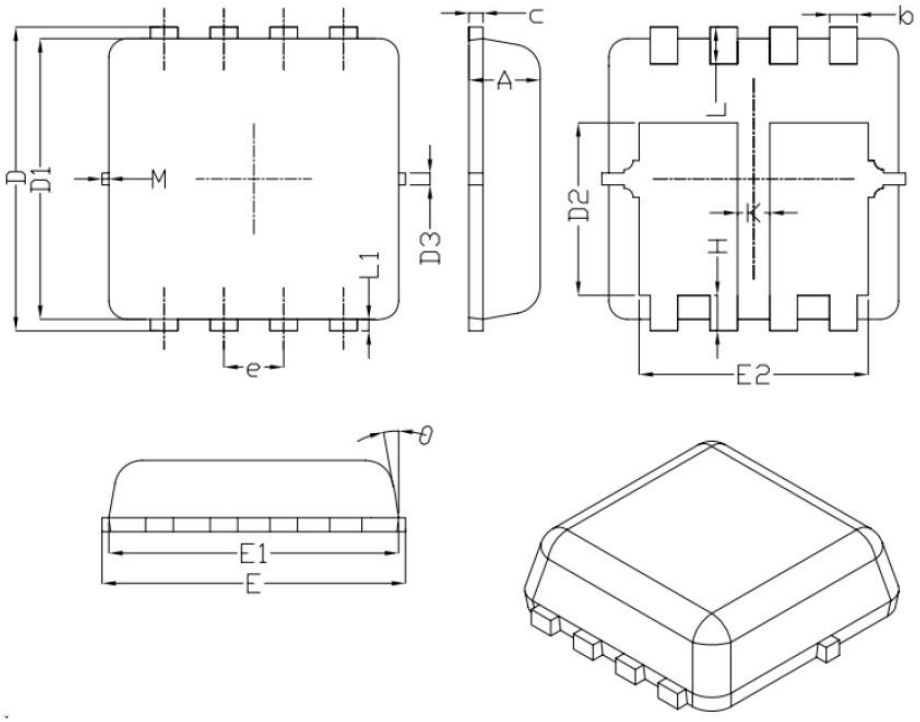


Figure 15. Normalized Maximum Transient Thermal Impedance



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			