THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Junction−to−Case − Steady State (Note 2)	$R_{\theta JC}$	0.62	°C/W
Junction−to−Ambient − Steady State (Notes 1, 2)	$R_{\theta JA}$	40	°C/W

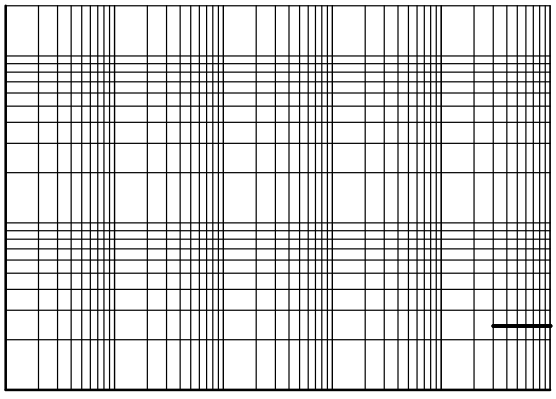
ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise stated)

Parameter	Symbol	Test Condition		Min	Typ	Max	Unit
OFF CHARACTERISTICS							
Drain−to−Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 1 mA		650	−	−	V
Drain−to−Source Breakdown Voltage Temperature Coefficient	$V_{(BR)DSS}/T_J$	I_D = 20 mA, refer to 25°C		−	0.13	−	V/°C
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS} = 0 V, V_{DS} = 650 V	T_J = 25°C	−	−	10	μA
			T_J = 175°C	−	−	1	mA
Gate−to−Source Leakage Current	I_{GSS}	V_{GS} = +18/−5 V, V_{DS} = 0 V		−	−	250	nA
ON CHARACTERISTICS							
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} = V_{DS} , I_D = 8 mA		1.8	2.8	4.3	V
Recommended Gate Voltage	V_{GOP}			−5	−	+18	V
Drain−to−Source On Resistance	$R_{DS(on)}$	V_{GS} = 15 V, I_D = 25 A, T_J = 25°C		−	45	−	mΩ
		V_{GS} = 18 V, I_D = 25 A, T_J = 25°C		−	31	50	
		V_{GS} = 18 V, I_D = 25 A, T_J = 175°C		−	40	−	
Forward Transconductance	g_{FS}	V_{DS} = 10 V, I_D = 25 A		−	16	−	S
CHARGES, CAPACITANCES & GATE RESISTANCE							
Input Capacitance	C_{ISS}	V_{GS} = 0 V, f = 1 MHz, V_{DS} = 325 V		−	1890	−	pF
Output Capacitance	C_{OSS}			−	168	−	
Reverse Transfer Capacitance	C_{RSS}			−	15	−	
Total Gate Charge	$Q_{G(TOT)}$	V_{GS} = −5/18 V, V_{DS} = 520 V, I_D = 25 A		−	105	−	nC
Gate−to−Source Charge	Q_{GS}			−	27	−	
Gate−to−Drain Charge	Q_{GD}			−	30	−	
Gate−Resistance	R_G	f = 1 MHz		−	3.1	−	Ω
SWITCHING CHARACTERISTICS							
Turn−On Delay Time	$t_{d(ON)}$	V_{GS} = −5/18 V, V_{DS} = 400 V, I_D = 25 A, R_G = 2.2 Ω, Inductive Load		−	13	−	ns
Rise Time	t_r			−	14	−	
Turn−Off Delay Time	$t_{d(OFF)}$			−	26	−	
Fall Time	t_f			−	7	−	
Turn−On Switching Loss	E_{ON}			−	47	−	μJ
Turn−Off Switching Loss	E_{OFF}			−	33	−	
Total Switching Loss	E_{TOT}			−	80	−	
SOURCE−DRAIN DIODE CHARACTERISTICS							
Continuous Source−Drain Diode Forward Current	I_{SD}	V_{GS} = −5 V, T_J = 25°C		−	−	56	A

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise stated)(continued)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
SOURCE−						

TYPICAL CHARACTERISTICS (continued)



TYPICAL CHARACTERISTICS (continued)

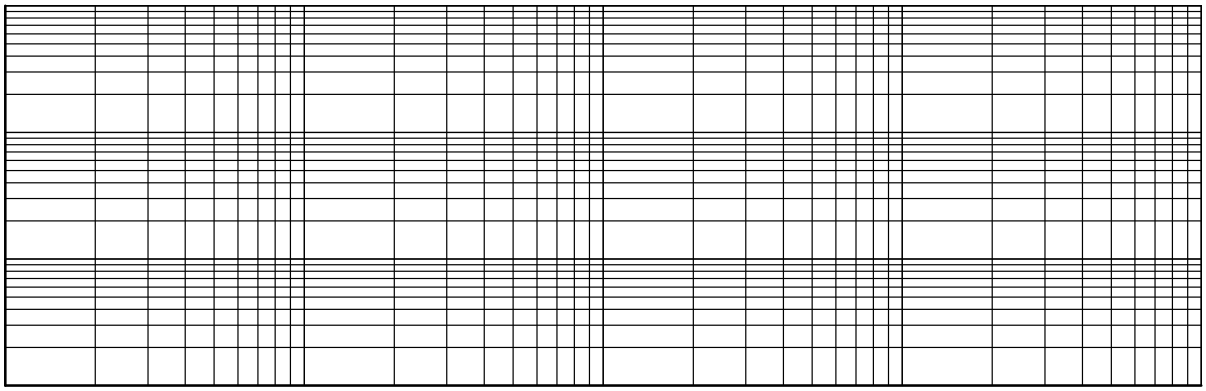
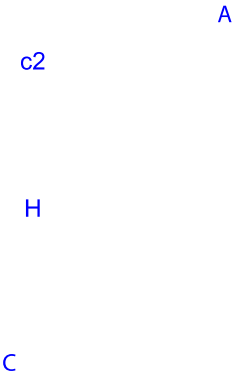


Figure 13. Junction−to−Case Transient Thermal Response

D^{2}PAK7 (TO−263−7L HV)
CASE 418BJ
ISSUE B

DATE 16 AUG 2019



GENERIC
MARKING DIAGRAM*

XXXX = Specific Device Code
A = Assembly Location
Y = Year
WW = Work Week
G = Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.