6 Specifications

6.1 Absolute Maximum Ratings

Over free-air temperature range unless otherwise noted(1)

		MIN	MAX	UNIT
Supply voltage	V+	–0.3	6	V
Voltage at	SCL, SDA, ALERT and ADD0	–0.3	6	V
Operating junction temperature, T_J		–55	155	°C
Storage temperature, T_{stg}		–65	155	°C

(1) Stresses beyond those listed under *Absolute Maximum Ratings* may cause permanent damage to the device. These are stress ratings only, which do not imply functional operation of the device at these or any other conditions beyond those indicated under *Recommended Operating Conditions*. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

6.2 ESD Ratings

			VALUE	UNIT
$V_{(ESD)}$	Electrostatic discharge	Human-body model (HBM), per ANSI/ESDA/JEDEC JS-001(1)	±2000	V
		Charged-device model (CDM), per JEDEC specification JESD22-C101(2)	±1000	

(1) JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.
(2) JEDEC document JEP157 states that 250-V CDM allows safe manufacturing with a standard ESD control process.

6.3 Recommended Operating Conditions

		MIN	NOM	MAX	UNIT
V+	Supply voltage, T_A = -55 °C to 150 °C	1.8	3.3	5.5	V
V+	Supply voltage, T_A = -55 °C to 70 °C	1.7		5.5	V
$V_{I/O}$	SCL, SDA, ALERT and ADD0	0		5.5	V
T_A	Operating free-air temperature	–55		150	°C

6.4 Thermal Information

THERMAL METRIC(1)		TMP117		UNIT
		YBG (DSBGA)	DRV (WSON)	
		6 PINS	6 PINS	
$R_{\theta JA}$	Junction-to-ambient thermal resistance	133.2	70.7	°C/W
$R_{\theta JC(top)}$	Junction-to-case (top) thermal resistance	1.0	82.3	°C/W
$R_{\theta JC(bot)}$	Junction-to-case (bottom) thermal resistance	N/A	11.7	°C/W
$R_{\theta JB}$	Junction-to-board thermal resistance	40.9	35.4	°C/W
ψ_{JT}	Junction-to-top characterization parameter	0.1	2.2	°C/W
ψ_{JB}	Junction-to-board characterization parameter	40.7	35.3	°C/W
M_T	Thermal Mass	0.8	5.1	mJ/°C

(1) For more information about traditional and new thermal metrics, see the *IC Package Thermal Metrics* application report, SPRA953.