|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \* Texas Instruments Data Flash File |  |  |  |  |
| \* File created Tue Jan 29 14:19:10 2019 |  |  |  |  |
| \* |  |  |  |  |
| \* Device Number 110 |  |  |  |  |
| \* Firmware Version 0.02 |  |  |  |  |
| \* Build Number 9 |  |  |  |  |
| \* Order Number 0 |  |  |  |  |
| \* |  |  |  |  |
| \* bqz Device Number 110 |  |  |  |  |
| \* bqz Firmware Version 0.01 |  |  |  |  |
| \* bqz Build Number 4 |  |  |  |  |
| \* |  |  |  |  |
| \* Field Order: Class name | Subclass name | Parameter name | Parameter Value | Display Units |
| Calibration | Data | CC Gain | 10.087 | mOhm |
| Calibration | Data | CC Delta | 1.019 | mOhm |
| Calibration | Data | CC Offset | -45.81 | mA |
| Calibration | Data | Board Offset | 0 | uA |
| Calibration | Data | Int Temp Offset | 0.6 | Â°C |
| Calibration | Data | Ext Temp Offset | 0 | Â°C |
| Calibration | Data | Pack V Offset | 0 | mV |
| Calibration | Data | Voltage Divider | 37558 | mV |
| Calibration | Temp Model | Int Coeff 1 | 0 | Num |
| Calibration | Temp Model | Int Coeff 2 | 0 | Num |
| Calibration | Temp Model | Int Coeff 3 | -12324 | Num |
| Calibration | Temp Model | Int Coeff 4 | 613.1 | degK |
| Calibration | Temp Model | Int Min AD | 0 | - |
| Calibration | Temp Model | Int Max Temp | 6131 | 0.1degK |
| Calibration | Temp Model | Ext Coeff 1 | 20982 | Num |
| Calibration | Temp Model | Ext Coeff 2 | -13836 | Num |
| Calibration | Temp Model | Ext Coeff 3 | 5202 | Num |
| Calibration | Temp Model | Ext Coeff 4 | 233.7 | degK |
| Calibration | Temp Model | Ext Min AD | 12909 | - |
| Calibration | Temp Model | Vcomp Coeff 1 | 0 | Num |
| Calibration | Temp Model | Vcomp Coeff 2 | 14902 | Num |
| Calibration | Temp Model | Vcomp Coeff 3 | -623 | Num |
| Calibration | Temp Model | Vcomp Coeff 4 | 37 | Num |
| Calibration | Temp Model | Vcomp Input Multiplier | 48 | Num |
| Calibration | Temp Model | Vcomp Output Divisor | 256 | Num |
| Calibration | Current | Filter | 239 | Num |
| Calibration | Current | Deadband | 5 | mA |
| Calibration | Current | CC Deadband | 34 | 294nV |
| Charger Control | Charge Inhibit Cfg | Chg Inhibit Temp Low | 0 | Â°C |
| Charger Control | Charge Inhibit Cfg | Chg Inhibit Temp High | 45 | Â°C |
| Charger Control | Charge Inhibit Cfg | Temp Hys | 5 | Â°C |
| Charger Control | JEITA Temperature | T1 Temp | 0 | Â°C |
| Charger Control | JEITA Temperature | T2 Temp | 10 | Â°C |
| Charger Control | JEITA Temperature | T3 Temp | 45 | Â°C |
| Charger Control | JEITA Temperature | T4 Temp | 55 | Â°C |
| Charger Control | JEITA Temperature | Charge Current T1-T2 | 1091 | mA |
| Charger Control | JEITA Temperature | Charge Current T2-T3 | 1100 | mA |
| Charger Control | JEITA Temperature | Charge Current T3-T4 | 660 | mA |
| Charger Control | JEITA Temperature | Charge Voltage T1-T2 | 4100 | mV |
| Charger Control | JEITA Temperature | Charge Voltage T2-T3 | 4200 | mV |
| Charger Control | JEITA Temperature | Charge Voltage T3-T4 | 4100 | mA |
| Charger Control | Charge Termination | Maintenance Current | 0 | mA |
| Charger Control | Charge Termination | Taper Current | 100 | mA |
| Charger Control | Charge Termination | Minimum Taper Capacity | 25 | mAh |
| Charger Control | Charge Termination | Taper Voltage | 100 | mV |
| Charger Control | Charge Termination | Current Taper Window | 40 | s |
| Charger Control | WHr Charge Termination | Max Charge Voltage | 4200 | mV |
| Charger Control | WHr Charge Termination | WHr CV Step | 50 | mV |
| Charger Control | WHr Charge Termination | WHr Termination Capacity | 1100 | mAh |
| Charger Control | WHr Charge Termination | FC WHr Clear | 1000 | mAh |
| Charger Control | NiMH Charge Termination | Delta Temperature | 3 | Â°C |
| Charger Control | NiMH Charge Termination | Delta Temperature Time | 100 | s |
| Charger Control | NiMH Charge Termination | Holdoff Time | 180 | s |
| Charger Control | NiMH Charge Termination | Holdoff Current | 240 | mA |
| Charger Control | NiMH Charge Termination | Holdoff Temperature | 25 | Â°C |
| Charger Control | NiMH Charge Termination | Cell Negative Delta Voltage | 17 | mV |
| Charger Control | NiMH Charge Termination | Cell Negative Delta Time | 16 | s |
| Charger Control | NiMH Charge Termination | Cell Negative Delta Qual Voltage | 3600 | mV |
| Charger Control | Learned Charge Voltage | Last Charge Voltage T1-T2 | 0 | mV |
| Charger Control | Learned Charge Voltage | Last Charge Voltage T2-T3 | 16 | mV |
| Charger Control | Learned Charge Voltage | Last Charge Voltage T3-T4 | 1040 | mV |
| Charger Control | Charge Level Control | Charge Voltage Level A | 3900 | mV |
| Charger Control | Charge Level Control | Charge Voltage Level B | 3950 | mV |
| Charger Control | Charge Level Control | Charge Voltage Level C | 4000 | mV |
| Charger Control | Charge Level Control | Charge Voltage Level D | 4050 | mV |
| Charger Control | Charge Level Control | Charge Voltage Level E | 4100 | mV |
| Charger Control | Charge Level Control | Charge Voltage Level F | 4150 | mV |
| Charger Control | Charge Level Control | Charge Voltage Level G | 4200 | mV |
| Charger Control | Charge Level Control | Charge Voltage Level H | 4250 | mV |
| Settings | Configuration | Direct Charge Pin Control | 0 | hex |
| Settings | Configuration | Charge Level Pin Control | 0 | hex |
| Settings | Configuration | Pin Control Config | 10 | hex |
| Settings | Configuration | Alert1\_0 Config | 0 | hex |
| Settings | Configuration | Alert1\_1 Config | 0 | hex |
| Settings | Configuration | Alert1\_2 Config | 0 | hex |
| Settings | Configuration | Alert1\_3 Config | 0 | hex |
| Settings | Configuration | Alert1\_4 Config | 0 | hex |
| Settings | Configuration | Alert1\_5 Config | 0 | hex |
| Settings | Configuration | Alert1\_6 Config | 0 | hex |
| Settings | Configuration | Alert2\_0 Config | 0 | hex |
| Settings | Configuration | Alert2\_1 Config | 0 | hex |
| Settings | Configuration | Alert2\_2 Config | 0 | hex |
| Settings | Configuration | Alert2\_3 Config | 0 | hex |
| Settings | Configuration | Alert2\_4 Config | 0 | hex |
| Settings | Configuration | Alert2\_5 Config | 0 | hex |
| Settings | Configuration | Alert2\_6 Config | 0 | hex |
| Settings | Configuration | SOC Flag Config A | 0c8c | hex |
| Settings | Configuration | SOC Flag Config B | 8c | hex |
| Settings | Configuration | CEDV Gauging Configuration | 000f | hex |
| Settings | Configuration | EOS Configuration | 1 | hex |
| Settings | BLT | Init Discharge Set | 150 | mAh |
| Settings | BLT | Init Charge Set | 175 | mAh |
| Settings | Accumulated Charge | Accum Charge Positive Threshold | 1000 | mAh |
| Settings | Accumulated Charge | Accum Charge Negative Threshold | 1000 | mAh |
| Settings | Manufacturing | Mfg Status Init | 1200 | hex |
| Safety | OTC | OT Chg | 55 | Â°C |
| Safety | OTC | OT Chg Time | 2 | s |
| Safety | OTC | OT Chg Recovery | 50 | Â°C |
| Safety | OTD | OT Dsg | 60 | Â°C |
| Safety | OTD | OT Dsg Time | 2 | s |
| Safety | OTD | OT Dsg Recovery | 55 | Â°C |
| Safety | UTC | UT Chg | 0 | Â°C |
| Safety | UTC | UT Chg Time | 2 | s |
| Safety | UTC | UT Chg Recovery | 5 | Â°C |
| Safety | UTD | UT Dsg | 0 | Â°C |
| Safety | UTD | UT Dsg Time | 2 | s |
| Safety | UTD | UT Dsg Recovery | 5 | Â°C |
| Safety | BATLOW | Battery Low Set Threshold | 1750 | mV |
| Safety | BATLOW | Battery Low Time | 2 | s |
| Safety | BATLOW | Battery Low Clear Threshold | 3400 | mV |
| Safety | BATHIGH | Battery High Set Threshold | 4300 | mV |
| Safety | BATHIGH | Battery High Time | 2 | s |
| Safety | BATHIGH | Battery High Clear Threshold | 4200 | mV |
| Safety | SOCLOW | SOC Low Threshold | 10 | % |
| Safety | SOCLOW | SOC Low Recovery | 30 | % |
| Configuration | Registers | Operation Config A | 8204 | hex |
| Configuration | Registers | Clk Ctl Reg | 9 | hex |
| Configuration | Registers | Device Type | 110 | Hex |
| Configuration | Registers | Number of Series Cells | 6 | Num |
| Configuration | Power | Flash Update OK Voltage | 0 | mV |
| Configuration | Power | Sleep Current | 10 | mA |
| Configuration | Power | Bus Low Time | 5 | s |
| Configuration | Power | Offset Cal Inhibit Temp Low | 5 | Â°C |
| Configuration | Power | Offset Cal Inhibit Temp High | 45 | Â°C |
| Configuration | Power | Sleep Voltage Time | 20 | s |
| Configuration | Power | Sleep Current Time | 20 | s |
| Configuration | Current Thresholds | Discharge Detection Threshold | 60 | mA |
| Configuration | Current Thresholds | Charge Detection Threshold | 75 | mA |
| Configuration | Current Thresholds | Quit Current | 40 | mA |
| Configuration | Current Thresholds | Discharge Relax Time | 60 | s |
| Configuration | Current Thresholds | Charge Relax Time | 60 | s |
| Configuration | Current Thresholds | Quit Relax Time | 1 | s |
| Configuration | Data | Default Temperature | 298.2 | K |
| Configuration | Data | Device Name | bq34110 | - |
| Configuration | Data | Data Flash Version | ffff | - |
| Configuration | Data | Serial Number | 1 | hex |
| Configuration | Data | Manufacture Date | 1/1/1980 | Day + Mo\*32 + (Yr -1980)\*256 |
| Configuration | Integrity Data | DF Static Checksum | 0 | hex |
| Configuration | Integrity Data | All DF Checksum | 0 | hex |
| Configuration | Integrity Data | IF Checksum | fbd3e090 | hex |
| Configuration | Integrity Data | Full Reset Counter | 0 | Num |
| Configuration | Integrity Data | Reset Counter WD | 0 | Num |
| System Data | Manufacturer Data | Manufacturer Info Block A01 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A02 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A03 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A04 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A05 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A06 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A07 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A08 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A09 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A10 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A11 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A12 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A13 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A14 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A15 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A16 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A17 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A18 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A19 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A20 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A21 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A22 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A23 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A24 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A25 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A26 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A27 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A28 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A29 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A30 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A31 | 0 | Hex |
| System Data | Manufacturer Data | Manufacturer Info Block A32 | 0 | Hex |
| Lifetimes | Lifetime Resolution | Temperature Resolution | 1 | C |
| Lifetimes | Lifetime Resolution | Current Resolution | 100 | mA |
| Lifetimes | Lifetime Resolution | Voltage Resolution | 1 | 20mV |
| Lifetimes | Temperature | Max Temperature | 30 | C |
| Lifetimes | Temperature | Min Temperature | 20 | C |
| Lifetimes | Current | Max Charge Current | 0 | mA |
| Lifetimes | Current | Max Discharge Current | 0 | mA |
| Lifetimes | Voltage | Max Pack Voltage | 160 | 20mV |
| Lifetimes | Voltage | Min Pack Voltage | 175 | 20mV |
| Gas Gauging | CEDV Profile | Design Capacity mAh | 2200 | mAh |
| Gas Gauging | CEDV Profile | EMF | 30 | - |
| Gas Gauging | CEDV Profile | C0 | 1000 | - |
| Gas Gauging | CEDV Profile | R0 | 4138 | - |
| Gas Gauging | CEDV Profile | T0 | 3743 | - |
| Gas Gauging | CEDV Profile | R1 | 149 | - |
| Gas Gauging | CEDV Profile | TC | 3 | - |
| Gas Gauging | CEDV Profile | C1 | 99 | - |
| Gas Gauging | CEDV Profile | Age Factor | 15 | - |
| Gas Gauging | CEDV Profile | Fixed EDV 0 | -16895 | - |
| Gas Gauging | CEDV Profile | EDV 0 Hold Time | 60 | s |
| Gas Gauging | CEDV Profile | Fixed EDV 1 | 2304 | - |
| Gas Gauging | CEDV Profile | EDV 1 Hold Time | 0 | s |
| Gas Gauging | CEDV Profile | Fixed EDV 2 | 3031 | - |
| Gas Gauging | CEDV Profile | EDV 2 Hold Time | 1 | s |
| Gas Gauging | CEDV Profile | Voltage 0% DOD | 3385 | mV |
| Gas Gauging | CEDV Profile | Voltage 10% DOD | 269 | mV |
| Gas Gauging | CEDV Profile | Voltage 20% DOD | -21247 | mV |
| Gas Gauging | CEDV Profile | Voltage 30% DOD | 4173 | mV |
| Gas Gauging | CEDV Profile | Voltage 40% DOD | 4043 | mV |
| Gas Gauging | CEDV Profile | Voltage 50% DOD | 3925 | mV |
| Gas Gauging | CEDV Profile | Voltage 60% DOD | 3821 | mV |
| Gas Gauging | CEDV Profile | Voltage 70% DOD | 3725 | mV |
| Gas Gauging | CEDV Profile | Voltage 80% DOD | 3656 | mV |
| Gas Gauging | CEDV Profile | Voltage 90% DOD | 3619 | mV |
| Gas Gauging | CEDV Profile | Voltage 100% DOD | 3582 | mV |
| Gas Gauging | Design | Design Voltage | 3700 | mV |
| Gas Gauging | Cycle | Cycle Count Percentage | 90 | % |
| Gas Gauging | FD | Set Voltage Threshold | 3000 | mV |
| Gas Gauging | FD | Clear Voltage Threshold | 3100 | mV |
| Gas Gauging | FD | Set % RSOC Threshold | 0 | % |
| Gas Gauging | FD | Clear % RSOC Threshold | 5 | % |
| Gas Gauging | FC | Set Voltage Threshold | 4200 | mV |
| Gas Gauging | FC | Clear Voltage Threshold | 4100 | mV |
| Gas Gauging | FC | Set % RSOC Threshold | 100 | % |
| Gas Gauging | FC | Clear % RSOC Threshold | 95 | % |
| Gas Gauging | TD | Set Voltage Threshold | 3200 | mV |
| Gas Gauging | TD | Clear Voltage Threshold | 3300 | mV |
| Gas Gauging | TD | Set % RSOC Threshold | 6 | % |
| Gas Gauging | TD | Clear % RSOC Threshold | 8 | % |
| Gas Gauging | TC | Set Voltage Threshold | 4200 | mV |
| Gas Gauging | TC | Clear Voltage Threshold | 4100 | mV |
| Gas Gauging | TC | Set % RSOC Threshold | 100 | % |
| Gas Gauging | TC | Clear % RSOC Threshold | 95 | % |
| Gas Gauging | State Profile | Cycle Count | 0 | - |
| Gas Gauging | State Profile | Learned Full Charge Capacity | 2200 | mAh |
| Gas Gauging | CEDV Cfg | Battery Low % | 27.13 | % |
| Gas Gauging | CEDV Cfg | Learning Low Temp | 0 | 0.1Â°C |
| Gas Gauging | CEDV Cfg | OverLoad Current | -32767 | mA |
| Gas Gauging | CEDV Cfg | Self Discharge Rate | 24 | 0.01%/day |
| Gas Gauging | CEDV Cfg | Electronics Load | 5133 | 3uA |
| Gas Gauging | CEDV Cfg | Near Full | 18532 | mAh |
| Gas Gauging | CEDV Cfg | Reserve Capacity | 5140 | mAh |
| Gas Gauging | CEDV Cfg | Chg Eff | 0 | % |
| Gas Gauging | CEDV Cfg | Dsg Eff | 0 | % |
| Gas Gauging | CEDV Cfg | RemCap Init Percent | 0 | % |
| Gas Gauging | CEDV Smoothing Config | Smoothing Config | c8 | hex |
| Gas Gauging | CEDV Smoothing Config | Smoothing Start Voltage | 0 | mV |
| Gas Gauging | CEDV Smoothing Config | Smoothing Delta Voltage | 25700 | mV |
| Gas Gauging | CEDV Smoothing Config | Max Smoothing Current | 25608 | s |
| Gas Gauging | CEDV Smoothing Config | EOC Smooth Current | 10 | % |
| Gas Gauging | CEDV Smoothing Config | EOC Smooth Current Time | 31 | s |
| End Of Service | Resistance Learning | Auto Learn Time | 1500 | Hours |
| End Of Service | Resistance Learning | Auto Learn Retry Time | 1 | Hours |
| End Of Service | Resistance Learning | Minimum Learn Time | 750 | Hours |
| End Of Service | Resistance Learning | Alert-Warn Learn Time | 750 | Hours |
| End Of Service | Resistance Learning | Initial Learn Pulse Number | 1 | Counts |
| End Of Service | Resistance Learning | Learn Charge Voltage Delta | 100 | mV |
| End Of Service | Resistance Learning | Learn Charge Time Limit | 3600 | s |
| End Of Service | Resistance Learning | Learn Discharge Current | 220 | mA |
| End Of Service | Resistance Learning | Learn Discharge Current Boundary | 25 | % |
| End Of Service | Resistance Learning | Learn Discharge Time | 500 | s |
| End Of Service | Resistance Learning | Learn Request Timeout | 4 | s |
| End Of Service | Resistance Learning | Learn Min Temperature | 10 | 1Â°C |
| End Of Service | Resistance Learning | Learn Max Temperature | 40 | 1Â°C |
| End Of Service | Resistance Learning | Learn Target Temperature | 25 | 1Â°C |
| End Of Service | Resistance Learning | Rcell High Temp Coefficient | 0 | 2^-16/0.1Â°C |
| End Of Service | Resistance Learning | Rcell Low Temp Coefficient | 0 | 2^-16/0.1Â°C |
| End Of Service | Direct Resistance Decision | DRD Alert Level | 0 | % |
| End Of Service | Direct Resistance Decision | DRD Alert Counts | 45 | Counts |
| End Of Service | Direct Resistance Decision | DRD Warning Level | 3 | % |
| End Of Service | Direct Resistance Decision | DRD Warning Counts | 0 | Counts |
| End Of Service | Direct Resistance Decision | Initial Rcell | 26640 | mOhm |
| End Of Service | Direct Resistance Decision | Initial Rcell Learned | 4 | - |
| End Of Service | Resistance Slope Decision | RSD Alert Level | 60 | % |
| End Of Service | Resistance Slope Decision | RSD Alert Counts | 3 | Counts |
| End Of Service | Resistance Slope Decision | RSD Warning Level | 0 | % |
| End Of Service | Resistance Slope Decision | RSD Warning Counts | 15 | Counts |
| End Of Service | Resistance Slope Decision | RSDL Alert Level | 3 | % |
| End Of Service | Resistance Slope Decision | RSDL Warning Level | 0 | % |
| End Of Service | Resistance Slope Decision | Initial RRate | 0 | - |
| End Of Service | Resistance Slope Decision | Initial RRate Learned | 0 | - |
| End Of Service | Safety Status | Warning Status | 0 | hex |