TPS92692-Q1 Simulation

1. Voltage Test
   a. Minimum input voltage : Vin=9V
   b. Maximum input voltage : Vin=16V
   c. Reverse input voltage : Vin=-16V
   d. Start voltage : 12V system, 1 start cycle

Table 7 — Specifications for start voltage test

Parameter	12V system	24V system	36V system	Time requirement (t)	Notes
Vstart on	7.8 Vdc	14 Vdc	21 Vdc	t1 = 200 milliseconds t2 = 30 seconds	The exposure test may be terminated if the circuit-protection device opens permanently. Power-supply transition rates should be less than 10 milliseconds/volt.
Vstart low	5.2 Vdc	8 Vdc	18 Vdc		

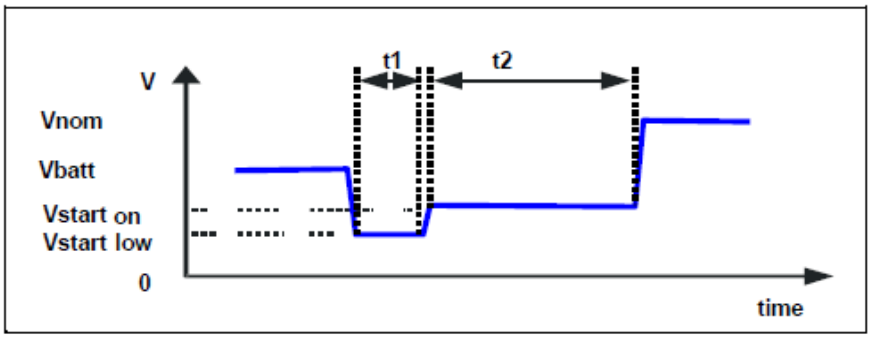

Figure 4 — Vstart test cycle

NOTE Waveform based on ISO 7637-2 Test Pulse 4.

   e. Voltage drain : 12V system, 1 start cycle

Table 8 — Specifications for voltage drain test

Parameter	12V system	24V system	36V system	Time requirement (t)	Notes
Vbattery	12.8 Vdc	25.6 Vdc	38.4 Vdc	t1 = 4 hours t2 = 2 hours	The exposure test may be terminated if a circuit-protection device opens permanently. The voltage should be reduced at a maximum of 0.1-volt steps.
Vdrain	2 Vdc	4 Vdc	6 Vdc		
Vminimum	9 Vdc	18 Vdc	30 Vdc		

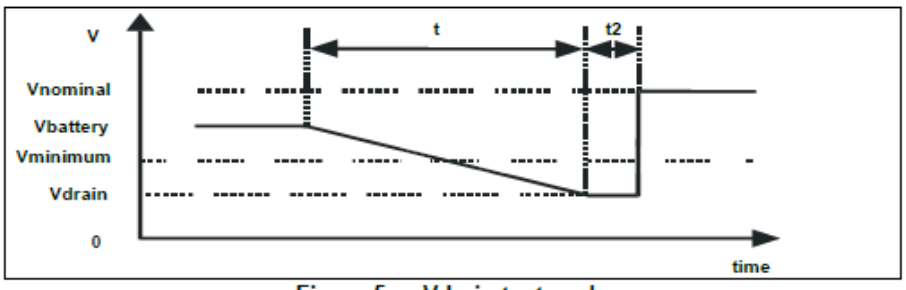

Figure 5 — Vdrain test cycle

   f. Jump voltage : Vin=24V

2. Electrical Transient Test

Table 2 — Required levels for transient immunity testing for each function performance status

Function performance status	Status I	Status II	Status III	Status IV
Load dump Vs (SAE J1113-11 Pulse 5A)	+75 V	+75 V	+75 V	+75 V
Inductive switching +Vs (SAE J1113-11 Pulse 1b)	+150 V	+300	+450 V	+600 V
Inductive switching –Vs (SAE J1113-11 Pulse 1b)	–600 V	–600 V	–600 V	–600 V
Mutual coupling +Vs (SAE J1113-11 Pulse 3B)	+200 V	+300 V	+300 V	+300 V
Mutual coupling –Vs (SAE J1113-11 Pulse 3A)	–300 V	–300 V	–300 V	–300 V
Conducted noise immunity 30 Hz to 80 kHz	3 V peak-to-peak	3 V peak-to-peak	3 V peak-to-peak	3 V peak-to-peak

a. Load dump : Vin=87.8V
b. Inductive load switching transient
c. Mutual coupling
d. Conducted noise immunity : 30Hz to 80Hz

3. Multiple Input Test
a. All inputs are put at the same time