Solid State Devices, Inc.
14701 Firestone Blvd * La Mirada, Ca 90638
Phone: (562) 404-4474 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SSG200EF60E

DESIGNER'S DATA SHEET

Part Number/Ordering Information [1/]

SSG200EF60E ___
L

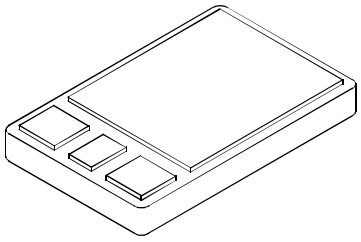
Screening [2/]
__ = Not Screened
TX = TX Level
TXV = TXV
S = S Level

200 AMP
N-CHANNEL IGBT
WITH ANTI-PARALLEL DIODE
600 VOLTS

Features:
- Outstanding current capability
- Low on-state conductive losses
- Very simple gate drive design
- Improved SOA characterization
- Low input capacitance
- High reverse voltage rating available
- TX, TXV, S-Level screening available

MAXIMUM RATINGS [3/]	SYMBOL	VALUE	UNIT
Collector – Emitter Breakdown Voltage	V_{CES}	600	V
Gate – Emitter Voltage	V_{GES}	±20	V
Max. Continuous Collector Current @ T_C = 25ºC @ T_C = 90ºC	I_{C1} I_{C2}	200 100	A
Pulsed Collector Current [4/]	I_{CM}	300	A
Clamped Inductive Load Current (T_J = 125ºC) [5/]	I_{LM}	100	A
Reverse Voltage Avalanche Energy (I_C = 100A) [4/]	E_{ARV}	5.6	mJ
Operating & Storage Temperature	T_{OP} & T_{STG}	-55 to +150	ºC
Maximum Thermal Resistance (Junction to Case)	$R_{\theta JC}$	0.20	ºC/W
Total Device Dissipation @ T_C = 25ºC **Dissipation Derating From @ T_C = 25ºC to T_C = 150ºC**	P_{D1} P_{D2}	625 5	W W/ºC

Milpack 3



NOTES: *Pulse Test: Pulse Width = 300µsec, Duty Cycle = 2%.

1/ For ordering information, price, operating curves, and availability - contact factory.

2/ Screening based on MIL-PRF-19500. Screening flows available on request.

3/ Unless otherwise specified, all electrical characteristics @25°C.

4/ Pulse duration limited by TJmax; repetitive rating.

5/ VCC=80% rated BVCES, VGE=15V, L=30uH, RG=10Ω.

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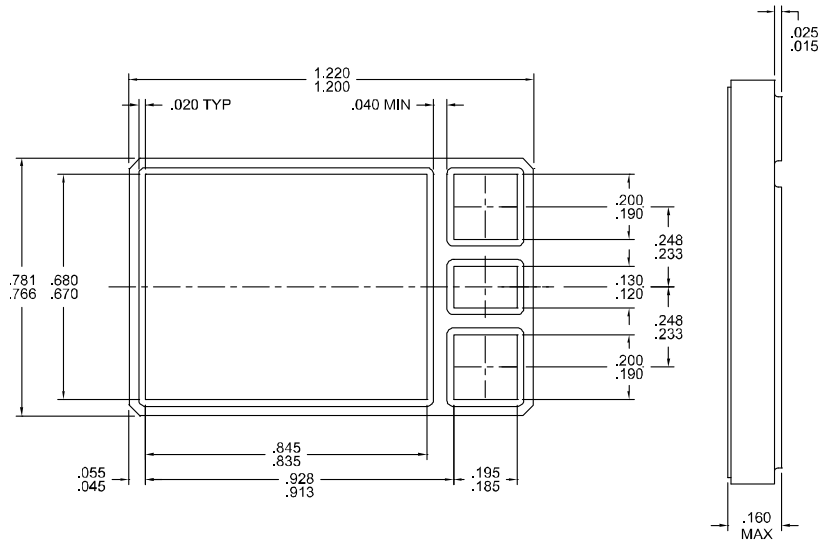
ELECTRICAL CHARACTERISTICS[3/]		SYMBOL	MIN	TYP	MAX	UNIT
Collector - Emitter Breakdown Voltage (I_{CES} = 250µA, V_{GE} = 0V)		BV_{CES}	600	—	—	V
Gate - Emitter Threshold Voltage (I_C = 5mA, V_{CE} = V_{GE})		$VGE_{(th)}$	2.5	5.5	6	V
Collector - Emitter Saturation Voltage	I_C = 100A @ 25°C I_C = 100A @ 100°C	$VCE_{(sat)}$	— —	1.65 1.8	2.0 2.4	V
Gate - Emitter Leakage Current (V_{GE} = ±20V, V_{CE} = 0V)		I_{GES}	—	0.01	1.0	µA
Collector Leakage Current (V_{CE} = 480 V, V_{GE} = 0V, T_j = 25°C) (V_{CE} = 600 V, V_{GE} = 0V, T_j = 25°C) (V_{CE} = 480 V, V_{GE} = 0V, T_j = 125°C)		 I_{CES1} I_{CES2} I_{CES3}	 — — —	 10 40 4	 — 200 10	 µA µA mA
Forward Transconductance (I_C = I_{C2}, V_{CE} = 10V)		g_{fs}	40	—	—	S
Gate Charge						
Total Gate Charge	V_{GE} = 15V	$Q_{g(on)}$	—	575	650	nC
Gate-Emitter Charge	I_C = 10A	Q_{ge}	—	70	150	
Gate-Collector Charge	V_{CE} = 300V	Q_{gc}	—	320	370	
Capacitance						
Input Capacitance	V_{GE} = 0V	C_{ies}	—	8400	15,000	pF
Output Capacitance	V_{CE} = 25V	C_{oes}	—	1400	2,000	
Reverse Transfer Capacitance	f = 1 MHz	C_{res}	—	600	1,000	
Inductive Switching						
Turn-On Delay Time	V_{GE} = 15V	$t_{d(on)}$	—	150	500	nsec
Rise Time	I_C = 45A	t_r	—	140	175	
Turn-Off Delay Time	R_G = 10Ω	$t_{d(off)}$	—	600	1000	
Fall Time	L = 100µH	t_f	—	300	500	
ANTI-PARALLEL DIODE						
Peak Current		I_{pk}	—	—	200	A
Peak Inverse Voltage		**PIV**	—	—	600	V
Average Current		I_{avg}	—	—	100	A
Diode Forward Voltage @ IF=100A, TJ=25 °C		**VF**	—	1.1	1.5	V
Reverse Recovery Time (If=40A, di/dt=200A/µsec)		**trr**	—	200	400	nsec

PACKAGE OUTLINE: MILPACK3

PIN OUT:
PIN 1: COLLECTOR
PIN 2: EMITTER
PIN 3: GATE
PIN 4: EMITTER



NOTE: All specifications are subject to change without notification.
SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: G00003B | **DOC**