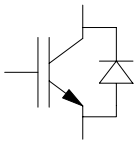
SOLID STATE DEVICES, INC.
14830 Valley View Blvd * La Mirada, Ca 90638
Phone: (562) 404-7855 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SSG42N60 SERIES



50 AMP 600 VOLTS FAST POWER IGBT

DESIGNER'S DATA SHEET

Part Number /Ordering Information [1/]

SSG42N60 N _ TX

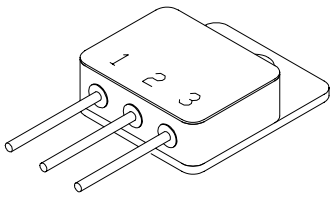
- **Screening** [2/]: _ = Not Screened, TX = TX Level, TXV = TXV Level, S = Space Level
- **Lead Bend** [3/4/]: _ = Straight, UB = Up Bend, DB = Down Bend
- **Package:** [3/] N = TO-258, Isolated, P = TO-259, Isolated, S2 = SMD2

APPLICATION NOTES:

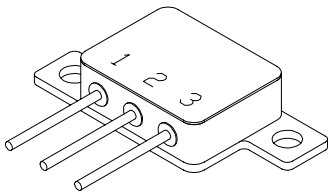
- **600V IGBT Technology**
- **Positive Temperature Coefficient for Ease of Paralleling**
- **High Current Switching for Motor Drives and Inverters**
- **Low Saturation Voltage at High Currents.**
- **Low Switching Losses.**
- **High Short Circuit Capability**
- **MOS Input, Voltage Controlled.**
- **Ultra Fast Free Wheeling Diodes**
- **Hermetic Sealed Construction.**
- **TX, TXV, and S-Level Screening Available.**

MAXIMUM RATINGS		SYMBOL	VALUE	UNITS
Collector-Emitter Voltage		V_{CEO}	600	Volts
Continuous Collector Current	@ T_C = 25°C	I_C	70	Amps
	@ T_C = 90°C		42	
Average Diode Current	@ T_C = 25°C	I_O	40	
Peak Collector Current		$I_{C(pk)}$ I_{IFSM}	140 300	Amps
Gate Emitter Voltage		V_{GE}	±20	Volts
Operating and Storage Temperature		T_J, T_{STG}	-65 to +200	°C
Total Device Dissipation @ T_C = 25°C		P_D	200	W
Thermal Resistance, Junction to Case	**N, P** **S2**	$R_{\theta JC}$	0.8 0.7	°C/W

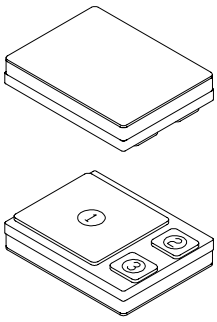
TO-258 (N)



TO-259 (P)



SMD2 (S2)



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

DATA SHEET #: TG0002A

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ELECTRICAL CHARACTERISTICS 5/		SYMBOL	MIN	TYP	MAX	UNITS
Collector - Emitter Breakdown Voltage (V_{GE} = 0V, I_C = 2mA)		$V_{(BR)CES}$	600	-	-	V
Collector - Emitter Saturation Voltage (V_{GE} = 15V, I_C = 50A)		$V_{CE\ (SAT)}$	-	2	2.5	V
Gate - Emitter Threshold Voltage (V_{GE} = V_{CE}, I_C = 1mA)		$V_{GE\ (th)}$	3	4	5	V
Zero Gate Voltage Collector Current (V_{CE} = 600V, V_{GE} = 0V)	T_J = 25°C T_J = 100°C	I_{CES}	- -	- -	150 12	µA mA
Gate - Emitter Leackage Current (V_{GE} = 30V, V_{CE} = 0V)		I_{GES}	-	-	120	nA
Input Capacitance (V_{CE} = 25V, V_{GE} = 0V, f = 1MHz)		C_{iss}	-	2750	-	pF
Output Capacitance (V_{CE} = 25V, V_{GE} = 0V, f = 1MHz)		C_{oss}	-	250	-	pF
Reverse Transfer Capacitance (V_{CE} = 25V, V_{GE} = 0V, f = 1MHz)		C_{rss}	-	50	-	pF
Turn-On Delay Time	(V_{CC} = 400V, I_C = 50A_{DC}, V_{GE} = 15 / 0V, R_G = --Ω, t_P = 10µsec, Duty Cycle ≤ 1% T_j = 150°C)	$t_{d(on)}$	-	25	-	nsec
Rise Time		t_r	-	30	-	nsec
Turn-Off Delay Time		$t_{d(off)}$	-	500	-	nsec
Fall Time		t_f	-	360	-	nsec
Reverse Diode Forward Voltage Drop (V_{GE} = 0V)	I_F = 20A I_F = 40A	V_F	-	-	1.35 1.55	V
Reverse Diode Reverse Recovery Time (I_F = 0.5A, I_R = 1A, I_{RR} = 0.25A)		t_{RR}	-	-	35	nsec

NOTES:

* Pulse Test: Pulse Width = 300us, Duty Cycle = 2%

1/ For Ordering Information, Price, and Availability Contact Factory.

2/ Screening per MIL-PRF-19500.

3/ For Package Outlines Contact Factory.

4/ Up and Down Bend Configurations Available for N and P (TO-258 and TO-259) Packages Only.

5/ All Electrical Characteristics @25°C, Unless Otherwise Specified.

Available Part Numbers:

SSG42N60N SSG42N60NDB SSG42N60NUB
SSG42N60P SSG42N60PDB SSG42N60PUB
SSG42N60S2

PIN ASSIGNMENT			
PACKAGE	**Collector**	**Emitter**	**Gate**
TO-258	Pin1	Pin 2	Pin 3
TO-259	Pin 1	Pin 2	Pin 3
SMD2	Pin 1	Pin 2	Pin 3