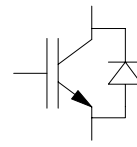




SOLID STATE DEVICES, INC.

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/}

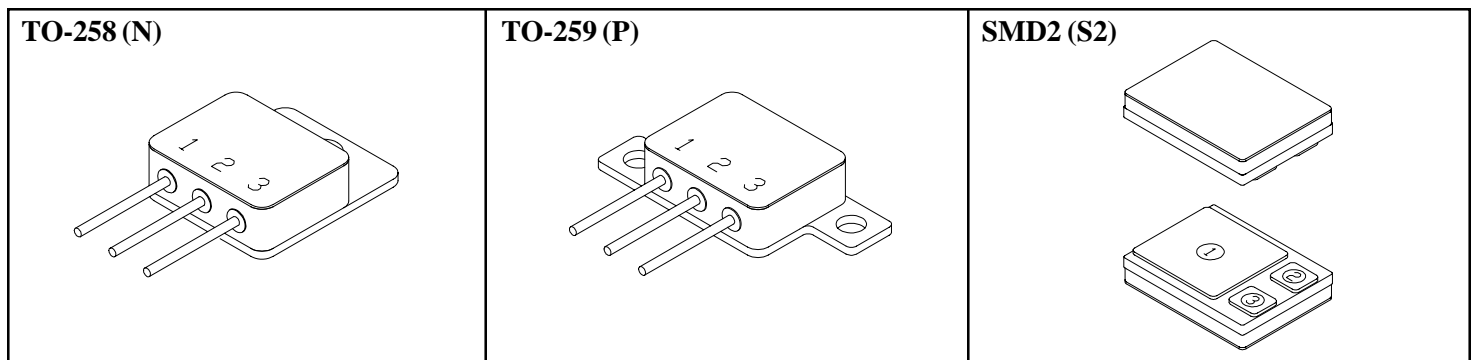
SSG42N60 N TX

- 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 @ $T_C = 25^\circ C$	I_C	70	Amps
Average Diode Current @ $T_C = 25^\circ C$	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	$^\circ C$
Total Device Dissipation @ $T_C = 25^\circ C$	P_D	200	W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.8 0.7	$^\circ C/W$



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)		I _{CES}	T _J = 25°C -	-	150	μA
			T _J = 100°C -	-	12	mA
Gate - Emitter Leakage 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)		V _F	I _F = 20A -	-	1.35	V
			I _F = 40A -	-	1.55	
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