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

SSG55N60 series

DESIGNER'S DATA SHEET

Part Number/Ordering Information 1/

SSG55N60

Screening 2/
- __ = Not Screened
- TX = TX Level
- TXV = TXV
- S = S Level

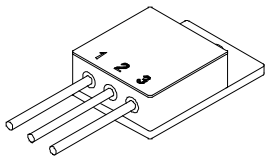
Package Type
- M = TO-254
- Z = TO-254Z
- N = TO-258
- P = TO-259

55 AMP /600 Volts
1.65 V saturation
ultrafast IGBT

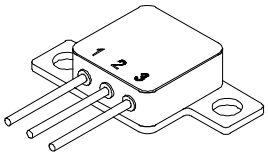
Features:
- Lowest ON-resistance in the industry
- Hermetically Sealed, Isolated Package
- Low Total Gate Charge
- Fast Switching
- TX, TXV, S-Level screening available

Maximum Ratings		Symbol	Value	Units
Collector – Emitter Breakdown Voltage		V_{CES}	600	V
Gate – Emitter Voltage		V_{GE}	±20	V
Max. Continuous Collector Current	@ T_C = 25ºC @ T_C = 100ºC	I_{D1} I_{D2}	55 27	A
Max. Instantaneous Drain Current (Tj limited)	@ T_C = 25ºC	I_{D3}	200	A
Clamped Inductive Load current	L= 10 uH	I_{LM}	200	A
Repetitive Reverse Voltage Avalanche Energy	Limited by Tj max	E_{ARV}	20	mJ
Total Power Dissipation	@ T_C = 25ºC	P_D	195	W
Operating & Storage Temperature		T_{OP} & T_{STG}	-55 to +150	ºC
Maximum Thermal Resistance (Junction to Case)		$R_{\theta JC}$	0.64 (typ 0.35)	ºC/W

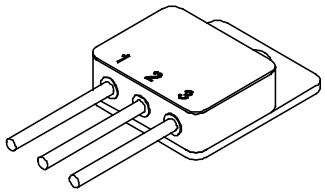
TO-254 (M)



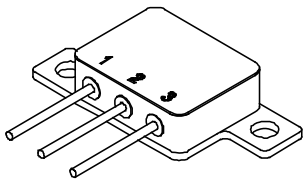
TO-254Z (Z)



TO-258 (N)



TO-259 (P)



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

1/ For ordering information, price, 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.

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Electrical Characteristics [3/]		Symbol	Min	Typ	Max	Units
Collector to Emitter Breakdown Voltage	V_{GE} = 0V, I_C = 250µA	BV_{CES}	600	—	—	V
Emitter to Collector Breakdown Voltage	V_{GE} = 0V, I_C = 1 A	BV_{ECS}	18	—	—	V
Collector to Emitter Saturation Voltage	V_{GE} = 15V, I_C = 27A, Tj= 25°C V_{GE} = 15V, I_C = 55A, Tj= 25°C V_{GE} = 15V, I_C = 27A, Tj= 150°C	$VCE_{(on)}$	— — —	1.65 2.0 1.6	2.0 — —	V
Gate Threshold Voltage	V_{CE} = V_{GE}, I_C = 0.25 mA	$V_{GS(th)}$	3.0	—	6.0	V
Gate to Emitter Leakage	V_{GE} = ±20V	I_{GES}	—	—	±100	nA
Zero Gate Voltage Collector Current	V_{CE} = 600V, V_{GE} = 0V, T_j = 25°C V_{CE} = 10V, V_{GE} = 0V, T_j = 25°C V_{CE} = 600V, V_{GE} = 0V, T_j = 150°C	I_{CES}	— — —	0.5 — —	250 2 5000	µA µA µA
Forward Transconductance	V_{CE} = 15V, I_C = 27A, T_j = 25°C	g_{fs}	15	25	—	Mho
Total Turn-on Gate Charge **Gate to Emitter Turn-on Charge** **Gate to Collector Turn-on Charge**	V_{GE} = 15V V_{CC} = 400V I_C = 27A	Q_g Q_{ge} Q_{gc}	— — —	180 25 60	275 40 90	nC
Turn on Delay Time **Rise Time** **Turn off Delay Time** **Fall Time**	V_{GE} = 15V, V_{CC} = 480V, I_C = 27A, R_G = 5.0Ω, T_j = 25°C	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	— — — —	35 20 175 90	— — 260 130	nsec
Turn-On Switching Losses **Turn-Off Switching Losses** **Total Switching Losses**	V_{GE} = 15V, V_{CC} = 480V, I_C = 27A, R_G = 5.0Ω, T_j = 25°C	E_{on} E_{off} E_{ts}	—	0.12 0.55 0.66	— — 0.9	mJ
Turn on Delay Time **Rise Time** **Turn off Delay Time** **Fall Time** **Total Switching Losses**	V_{GE} = 15V, V_{CC} = 480V, I_C = 27A, R_G = 5.0Ω, T_j = 150°C	$t_{d(on)}$ t_r $t_{d(off)}$ t_f E_{ts}	— — — — —	33 25 230 120 1.6	— — 260 130 —	ns ns ns ns mJ
Input Capacitance **Output Capacitance** **Reverse Transfer Capacitance**	V_{GE} = 0V V_{CC} = 30V f = 1 MHz	C_{ies} C_{oes} C_{res}	— — —	4000 250 55	— — —	pF

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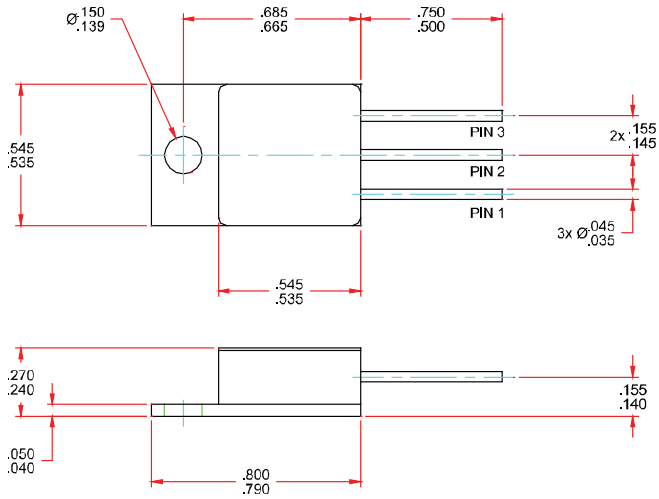
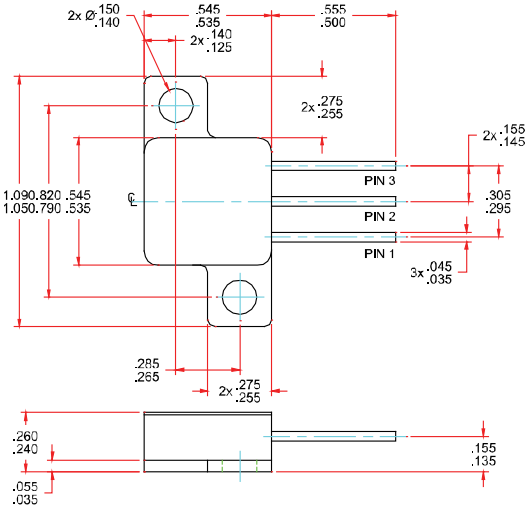
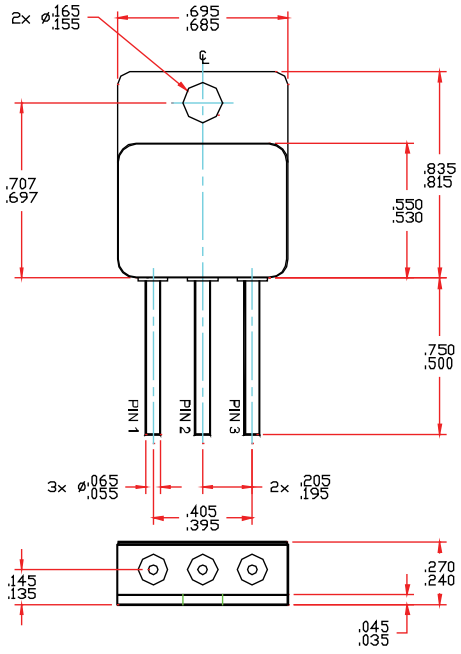
TO-254 (M)



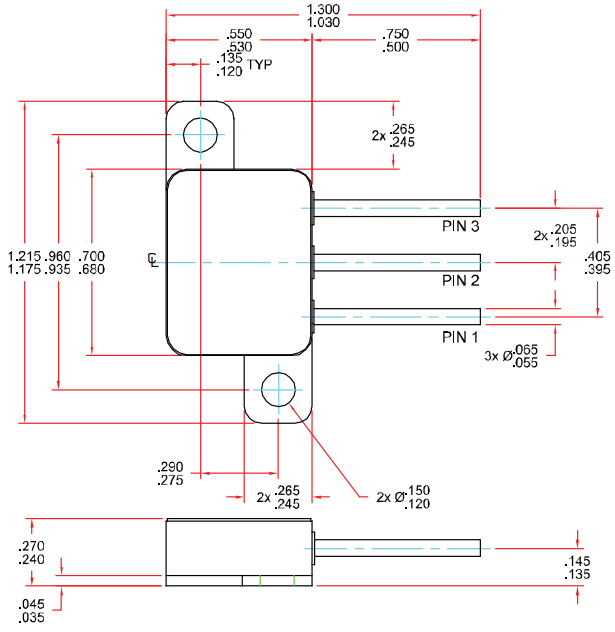
TO-254Z (Z)



TO-258 (N)



TO-259 (P)



Available Part Numbers:

SSG55N60M
SSG55N60Z
SSG55N60N
SSG55N60P

PIN ASSIGNMENT (Standard)			
Package	**Drain**	**Source**	**Gate**
TO-254 (M)	Pin 1	Pin 2	Pin 3
TO-254Z (Z)	Pin 1	Pin 2	Pin 3
TO-258 (N)	Pin 1	Pin 2	Pin 3
TO-259 (P)	Pin 1	Pin 2	Pin 3

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

DATA SHEET #: TG0005B

DOC