



**Solid State Devices, Inc.**

14830 Valley View Blvd \* La Mirada, Ca 90638

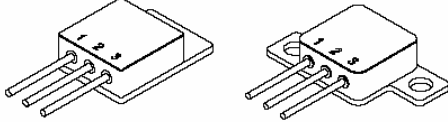
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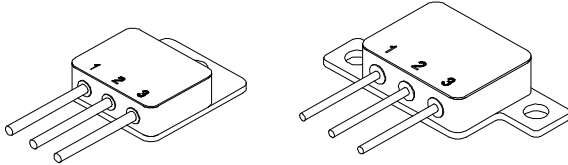
# SSG55N60 series

## DESIGNER'S DATA SHEET

### TO-254 and TO-254Z



### TO-258 and TO-259

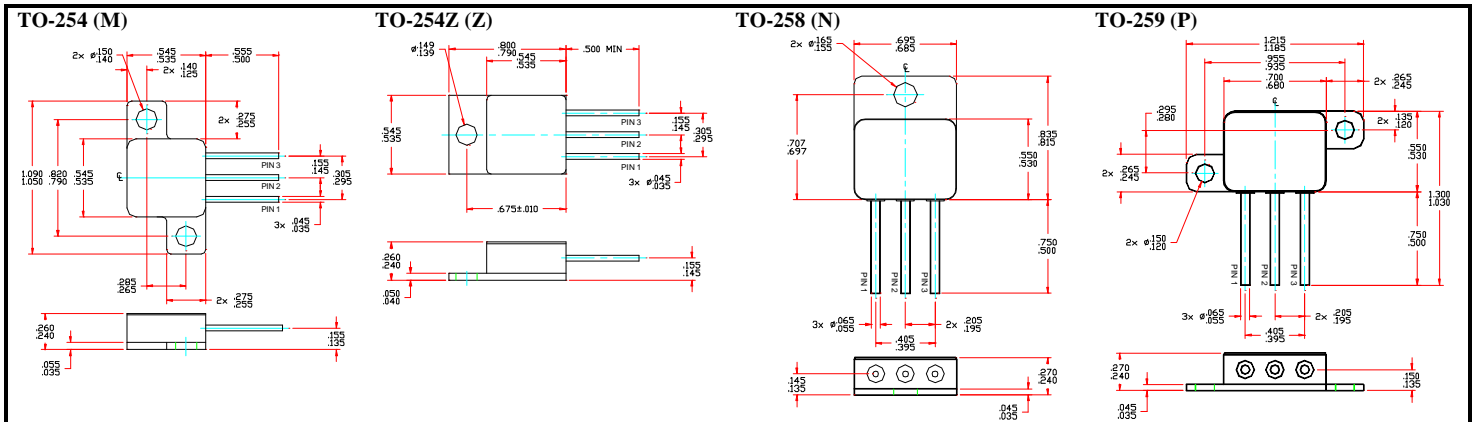


**55 AMP /600 Volts  
1.65 V saturation  
ultrafast IGBT**

### 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	$V_{GE}$	$\pm 20$	V
Max. Continuous Collector Current	$I_{D1}$	55	A
	$I_{D2}$	27	A
Max. Instantaneous Drain Current (Tj limited)	$I_{D3}$	200	A
Clamped Inductive Load current	$I_{LM}$	200	A
Repetitive Reverse Voltage Avalanche Energy	$E_{ARV}$	20	mJ
Total Power Dissipation	$P_D$	195	W
Operating & Storage Temperature	$T_{OP}$ & $T_{STG}$	-55 to +150	$^{\circ}C$
Maximum Thermal Resistance (Junction to Case)	$R_{\theta JC}$	0.64 (typ 0.35)	$^{\circ}C/W$



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

**DATA SHEET #:** TG0005A

**DOC**



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# SSG50N60 series

Electrical Characteristics <sup>4/</sup>	Symbol	Min	Typ	Max	Units
Collector to Emitter Breakdown Voltage $V_{GE} = 0V, I_C = 250\mu A$	$BV_{CES}$	600	—	—	V
Emitter to Collector Breakdown Voltage $V_{GE} = 0V, I_C = 1 A$	$BV_{ECS}$	18	—	—	V
Collector to Emitter Saturation Voltage $V_{GE} = 15V, I_C = 27A, T_j = 25^\circ C$ $V_{GE} = 15V, I_C = 55A, T_j = 25^\circ C$ $V_{GE} = 15V, I_C = 27A, T_j = 150^\circ C$	$V_{CE(on)}$	—	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 $V_{GE} = \pm 20V$	$I_{GES}$	—	—	$\pm 100$	nA
Zero Gate Voltage Collector Current $V_{CE} = 600V, V_{GE} = 0V, T_j = 25^\circ C$ $V_{CE} = 10V, V_{GE} = 0V, T_j = 25^\circ C$ $V_{CE} = 600V, V_{GE} = 0V, T_j = 150^\circ C$	$I_{CES}$	—	0.5 — —	250 2 5000	$\mu A$ $\mu A$ $\mu A$
Forward Transconductance $V_{CE} = 15V, I_C = 27A, T_j = 25^\circ C$	$g_{fs}$	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 $V_{GE} = 15V, V_{CC} = 480V,$ $I_C = 27A, R_G = 5.0\Omega, T_j = 25^\circ C$	$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$	—	35 20 175 90	— — 260 130	nsec
Turn-On Switching Losses Turn-Off Switching Losses Total Switching Losses $V_{GE} = 15V, V_{CC} = 480V,$ $I_C = 27A, R_G = 5.0\Omega, T_j = 25^\circ C$	$E_{on}$ $E_{off}$ $E_{ts}$	—	0.12 0.55 0.66	— — 0.9	mJ
Turn on Delay Time Rise Time Turn off Delay Time Fall Time Total Switching Losses $V_{GE} = 15V, V_{CC} = 480V,$ $I_C = 27A, R_G = 5.0\Omega, T_j = 150^\circ C$	$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$ $E_{ts}$	—	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

**NOTES:** \* Pulse Test: Pulse Width = 300 $\mu$ sec, 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/ Unless Otherwise Specified, All Electrical Characteristics @25°C.

### 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

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