



Solid State Devices, Inc.

14830 Valley View Blvd * La Mirada, Ca 90638

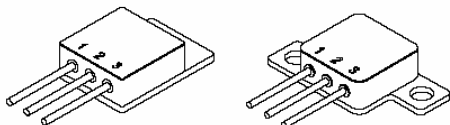
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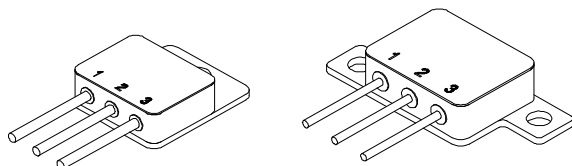
SSG55N60 series

DESIGNER'S DATA SHEET

TO-254 and TO-254Z



TO-258 and TO-259

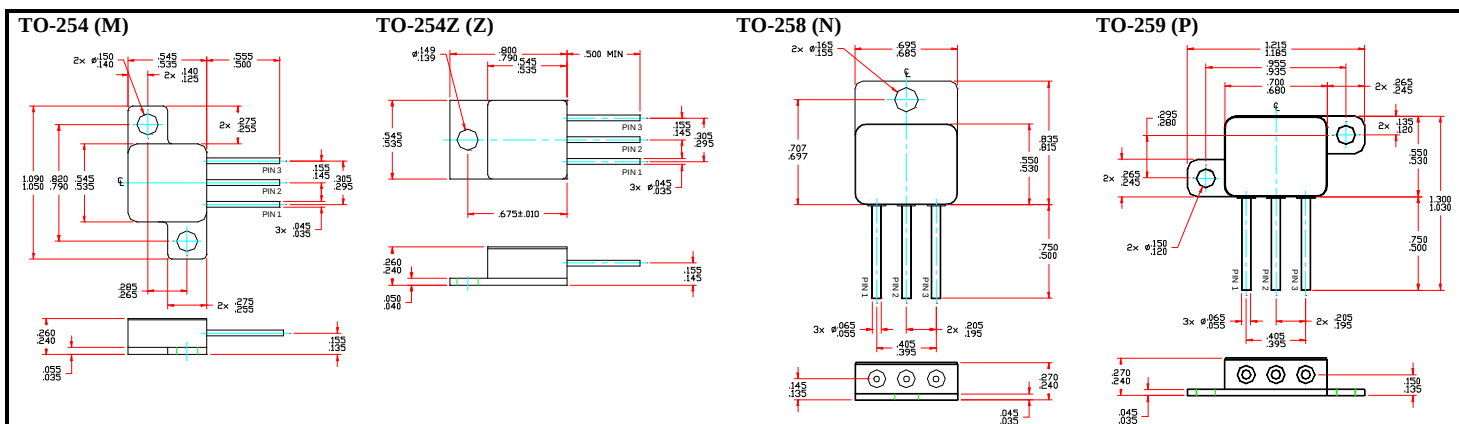


**55 AMP /600 Volts
1.65 V saturation
ultrafast IGBT**

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}	± 20	V
Max. Continuous Collector Current	I_{D1} I_{D2}	55 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

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SSG50N60 series

Electrical Characteristics ^{4/}		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	$V_{GE} = 15V, I_C = 27A, T_j = 25^\circ C$	$V_{CE(on)}$	—	1.65	2.0	V
	$V_{GE} = 15V, I_C = 55A, T_j = 25^\circ C$		—	2.0	—	
	$V_{GE} = 15V, I_C = 27A, T_j = 150^\circ C$		—	1.6	—	
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}	—	—	± 100	nA
Zero Gate Voltage Collector Current	$V_{CE} = 600V, V_{GE} = 0V, T_j = 25^\circ C$	I_{CES}	—	0.5	250	μA
	$V_{CE} = 10V, V_{GE} = 0V, T_j = 25^\circ C$		—	—	2	μA
	$V_{CE} = 600V, V_{GE} = 0V, T_j = 150^\circ C$		—	—	5000	μA
Forward Transconductance	$V_{CE} = 15V, I_C = 27A, T_j = 25^\circ C$	g_{fs}	15	25	—	Mho
Total Turn-on Gate Charge	$V_{GE} = 15V$	Q_g	—	180	275	nC
Gate to Emitter Turn-on Charge	$V_{CC} = 400V$	Q_{ge}	—	25	40	
Gate to Collector Turn-on Charge	$I_C = 27A$	Q_{gc}	—	60	90	
Turn on Delay Time	$V_{GE} = 15V, V_{CC} = 480V,$ $I_C = 27A, R_G = 5.0\Omega, T_j = 25^\circ C$	$t_{d(on)}$	—	35	—	nsec
Rise Time		t_r	—	20	—	
Turn off Delay Time		$t_{d(off)}$	—	175	260	
Fall Time		t_f	—	90	130	
Turn-On Switching Losses	$V_{GE} = 15V, V_{CC} = 480V,$ $I_C = 27A, R_G = 5.0\Omega, T_j = 25^\circ C$	E_{on}	—	0.12	—	mJ
Turn-Off Switching Losses		E_{off}	—	0.55	—	
Total Switching Losses		E_{ts}	—	0.66	0.9	
Turn on Delay Time	$V_{GE} = 15V, V_{CC} = 480V,$ $I_C = 27A, R_G = 5.0\Omega, T_j = 150^\circ C$	$t_{d(on)}$	—	33	—	ns
Rise Time		t_r	—	25	—	ns
Turn off Delay Time		$t_{d(off)}$	—	230	260	ns
Fall Time		t_f	—	120	130	ns
Total Switching Losses		E_{ts}	—	1.6	—	mJ
Input Capacitance	$V_{GE} = 0V$	C_{ies}	—	4000	—	pF
Output Capacitance	$V_{CC} = 30V$	C_{oes}	—	250	—	
Reverse Transfer Capacitance	$f = 1 MHz$	C_{res}	—	55	—	

NOTES: * Pulse Test: Pulse Width = 300 μ 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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