

FAST-SWITCH HOLLOW-EMITTER NPN TRANSISTOR

- VERY HIGH SWITCHING SPEED
- NPN TRANSISTOR
- LOW BASE-DRIVE REQUIREMENTS

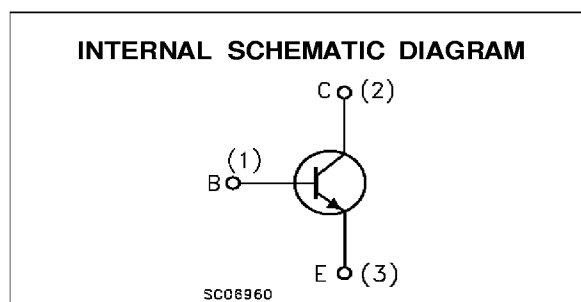
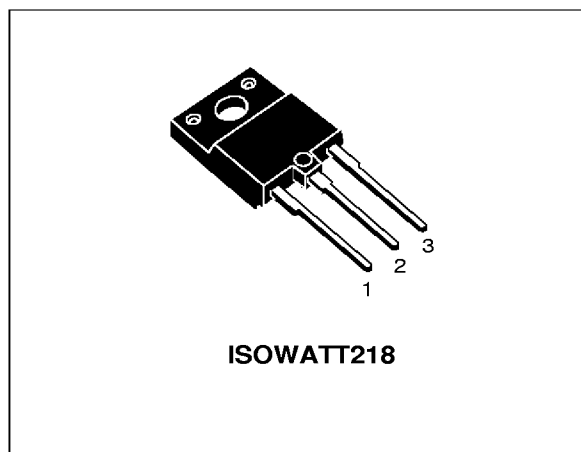
APPLICATIONS:

- SWITCH MODE POWER SUPPLIES

DESCRIPTION

The SGSIF461 is manufactured using Multi-epitaxial Mesa technology for cost-effective high performance and uses a Hollow Emitter structure to enhance switching speeds.

The SGSIF series is designed for high speed switching applications such as power supplies and horizontal deflection circuits in TVs and monitors.



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)	850	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	400	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	7	V
I_C	Collector Current	15	A
I_{CM}	Collector Peak Current ($t_p < 5$ ms)	25	A
I_B	Base Current	8	A
I_{BM}	Base Peak Current ($t_p < 5$ ms)	15	A
P_{tot}	Total Dissipation at $T_c = 25$ °C	55	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

		ISOWATT218	
$R_{thj-case}$	Thermal Resistance Junction-Case	Max	2.2 °C/W

ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ °C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current ($V_{BE} = 0$)	$V_{CE} = 700\text{ V}$			200	μA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{EC} = 380\text{ V}$ $V_{EC} = 400\text{ V}$			200 2	μA mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{BE} = 7\text{ V}$			1	mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage	$I_C = 100\text{ mA}$	400			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{ A}$ $I_B = 2\text{ A}$ $I_C = 5.5\text{ A}$ $I_B = 0.8\text{ A}$			1.5 1.5	V V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 10\text{ A}$ $I_B = 2\text{ A}$ $I_C = 5.5\text{ A}$ $I_B = 0.8\text{ A}$			1.5 1.5	V V
t_{ON} t_s t_f	Turn-on Time Storage Time Fall Time	RESISTIVE LOAD $V_{CC} = 250\text{ v}$ $I_C = 10\text{ A}$ $I_{B1} = 2\text{ A}$ $I_{B2} = -2I_{B1}$		1 1.4 0.25	1.7 2.3 0.5	μs μs μs
t_{ON} t_s t_f	Turn-on Time Storage Time Fall Time	RESISTIVE LOAD $V_{CC} = 250\text{ v}$ $I_C = 10\text{ A}$ $I_{B1} = 2\text{ A}$ $I_{B2} = -2I_{B1}$ With Antisaturation Network		1 1 0.15		μs μs μs
t_{ON} t_s t_f	Turn-on Time Storage Time Fall Time	RESISTIVE LOAD $V_{CC} = 250\text{ V}$ $I_C = 10\text{ A}$ $I_{B1} = 2\text{ A}$ $V_{BE(off)} = -5\text{ V}$		1 1 0.06		μs μs μs
t_s t_f	Storage Time Fall Time	INDUCTIVE LOAD $I_C = 10\text{ A}$ $h_{FE} = 5$ $V_{CL} = 350\text{ V}$ $V_{BE(off)} = -5\text{ V}$ $L = 300\text{ }\mu\text{H}$ $R_{BE(off)} = 1.2\text{ }\Omega$		1.4 0.1	2.8 0.2	μs μs
t_s t_f	Storage Time Fall Time	INDUCTIVE LOAD $I_C = 10\text{ A}$ $h_{FE} = 5$ $V_{CL} = 350\text{ V}$ $V_{BE(off)} = -5\text{ V}$ $L = 300\text{ }\mu\text{H}$ $R_{BE(off)} = 1.2\text{ }\Omega$ $T_C = 100\text{ °C}$			4 0.3	μs μs

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

ISOWATT218 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	5.35		5.65	0.210		0.222
C	3.3		3.8	0.130		0.149
D	2.9		3.1	0.114		0.122
D1	1.88		2.08	0.074		0.081
E	0.75		1	0.029		0.039
F	1.05		1.25	0.041		0.049
G	10.8		11.2	0.425		0.441
H	15.8		16.2	0.622		0.637
L1	20.8		21.2	0.818		0.834
L2	19.1		19.9	0.752		0.783
L3	22.8		23.6	0.897		0.929
L4	40.5		42.5	1.594		1.673
L5	4.85		5.25	0.190		0.206
L6	20.25		20.75	0.797		0.817
M	3.5		3.7	0.137		0.145
N	2.1		2.3	0.082		0.090
U		4.6			0.181	

