SEMICOA
SEMICONDUCTORS

Type GSDS50018 & GSDS50020

Data Sheet No. GSDS50018 & GSDS50020

Generic Part Number:

GSDS50018 & GSDS50020

Request Quotation

High Power NPN Transistors
180 V & 200 V, 50 Amp Switching
TO-3 (TO-2004AE) Case

Features:

- High Voltage
- High Gain
- High Current
- Low Saturation Voltages
- Fast Switching
- Radiation Resistant

Applications:

- High Speed Switching
- Power Conversion
- Converters
- Inverters
- Class D Amplifiers
- Class C Amplifiers

Semicoa's GSD series is a family of NPN silicon transistors designed for high speed switching systems. This unique series utilizes technology that provides surface stabilization for high voltage operation and enhances long term reliability. A design feature is the use of an interdigital emitter providing a periphery greater than 7.0 inches. This improves both the gain and current handling capability.

These transistors have been specifically designed and engineered for high speed, high voltage switching applications where the designer is concerned with optimizing power conversion efficiency.

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Maximum Ratings

Ratings	Symbol	GSDS 50018	GSDS 50020	Unit
Collector-Base Voltage	V_{CBO}	180	200	V
Emitter-Base Voltage	V_{EBO}	7	7	V
Collector Current Continuous	I_C	50	50	A
Collector Current Peak	I_{CM}	75	75	A
Base Current Continuous	I_B	20	20	A
Total Power Dissipation @ $T_C = 25^\circ C$	P_D	100	100	W
Junction to Case Thermal Resistance	R_{J-C}	1	1	°C/W
Operating Junction Temperature	$T_{J(oper)}$	-65 to +200	-65 to +200	°C
Storage Temperature	$T_{(stg)}$	-65 to +200	-65 to +200	°C

Electrical Characteristics

$T_C = 25^\circ C$ unless otherwise specified

Test Conditions	Symbol	GSDS50018 Min	GSDS50018 Max	GSDS50020 Min	GSDS50020 Max	Unit
I_C = 1.0 mA	V_{CBO}	180	—	200	—	V
I_C = 50 mA	V_{CEO}	180	—	200	—	V
I_E = 1.0 mA	V_{EBO}	7	—	7	—	V
$I_E = V_{EB}$ = 6.0 V	I_{EBO}	—	100	—	100	µA
V_{CE} = 80% Rated	I_{CEO}	—	50	—	50	µA
V_{CE} = 80% Rated, V_{BE} = -1.5 V	I_{CEX}	—	10	—	10	µA
L = 50 µH, $V_{BE(off)}$ = -1 V R_{BB} = 47 Ohms	$E_{S/B}$	750	—	750	—	µJ
V_{CE} = 4.0 V, I_C = 50 mA	h_{FE}	8	—	8	—	—
I_C = 50 A, I_B = 10 A	$V_{CE(sat)}$	—	1	—	1	V
I_C = 50 A, I_B = 10 A	$V_{BE(sat)}$	—	2	—	2	V
V_{CE} = 10 V, I_C = 1.0 A, f = 10 MHz	$\lvert h_{FE} \rvert$	3	—	3	—	—
V_{CB} = 10 V, f = 1 MHz	C_{OBO}	—	350	—	350	pF
Resistive Load						
V_{CC} = 100 V	t_D	—	0.04	—	0.04	µs
I_C = 50 A	t_R	—	0.2	—	0.2	µs
$I_{B1} = I_{B2}$ = 10 A	t_S	—	0.75	—	0.75	µs
t_p 10 µS duty cycle	t_F	—	0.18	—	0.18	µs