SGS-THOMSON MICROELECTRONICS

MJD47

HIGH VOLTAGE FAST SWITCHING NPN POWER TRANSISTOR

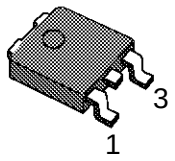
- SGS-THOMSON PREFERRED SALESTYPE
- HIGH VOLTAGE CAPABILITY
- SURFACE-MOUNTING TO-252 (DPAK) POWER PACKAGE IN TAPE & REEL (SUFFIX "T4")
- ELECTRICAL SIMILAR TO TIP47

APPLICATIONS

- SWITCH MODE POWER SUPPLIES
- AUDIO AMPLIFIERS
- GENERAL PURPOSE SWITCHING AND AMPLIFIER

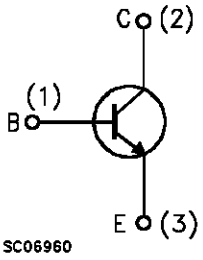
DESCRIPTION

The MJD47 is manufactured using Medium Voltage Epitaxial Planar technology, resulting in a rugged high performance cost-effective transistor.



DPAK
TO-252
(Suffix "T4")

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage (I_E = 0)	350	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	250	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	5	V
I_C	Collector Current	1	A
I_{CM}	Collector Peak Current (t_p < 5 ms)	2	A
I_B	Base Current	0.6	A
I_{BM}	Base Peak Current (t_p < 5 ms)	1.2	A
P_{tot}	Total Dissipation at T_c = 25 °C	15	W
T_{stg}	Storage Temperature	-65 to 150	°C
T_j	Max. Operating Junction Temperature	150	°C

THERMAL DATA

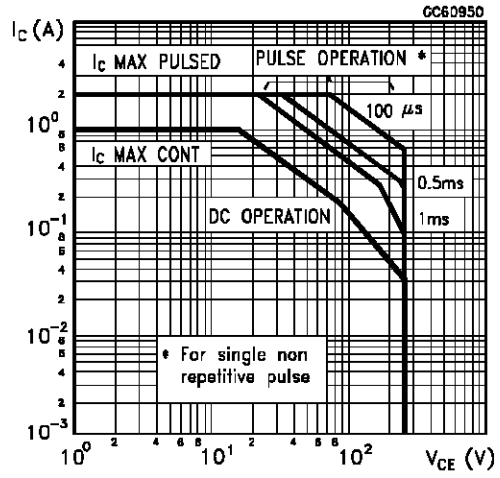
$R_{thj\text{-}case}$	Thermal Resistance Junction-case Max	8.33	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-ambient Max	100	°C/W

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

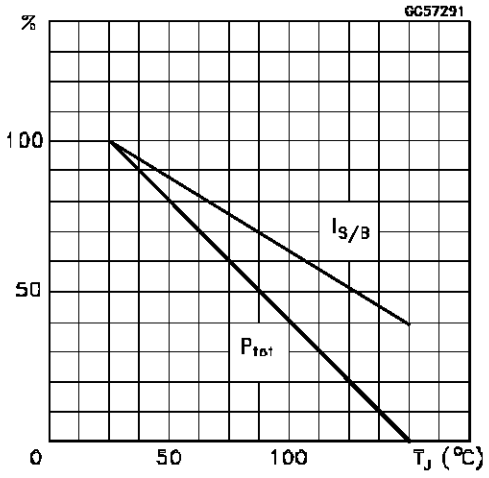
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = 350 V			0.1	mA
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = 150 V			0.2	mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	I_C = 30 mA	250			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 1 A I_B = 0.2 A			1	V
$V_{BE(on)}$*	Base-Emitter On Voltage	I_C = 1 A V_{CE} = 10 V			1.5	V
h_{FE}*	DC Current Gain	I_C = 0.3 A V_{CE} = 10 V I_C = 1 A V_{CE} = 10 V	30 10		150	
f_T	Transition Frequency	I_C = 200 mA V_{CE} = 10 V f=2MHz	10			MHz
h_{fe}	Small Signal Current Gain	I_C = 0.2 A V_{CE} = 10 V f=1kHz	25			

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

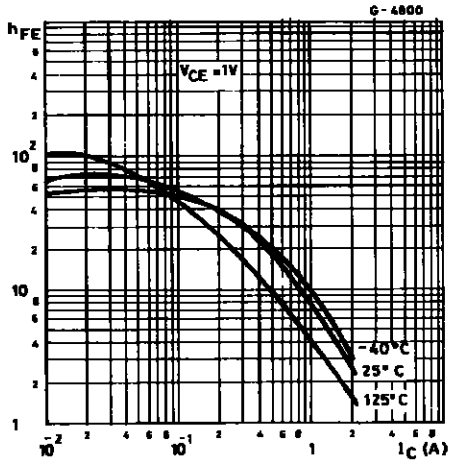
Safe Operating Areas



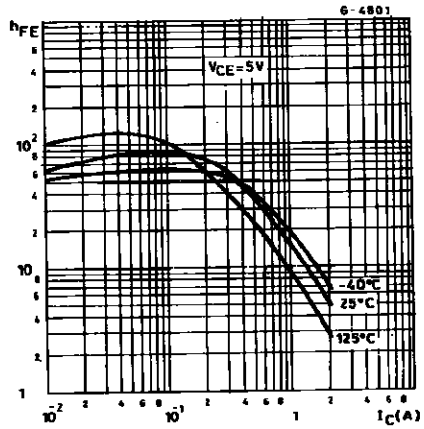
Derating Curves



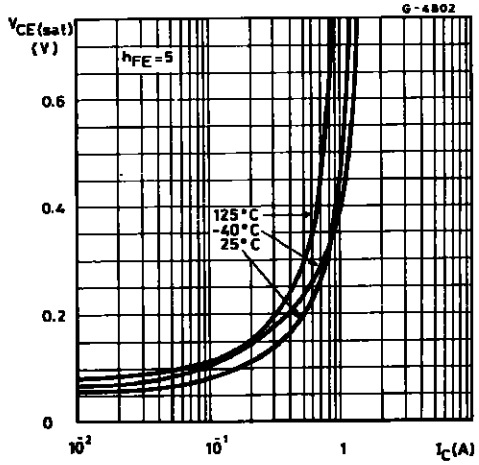
DC Current Gain



DC Current Gain



Collector-Emitter Saturation Voltage



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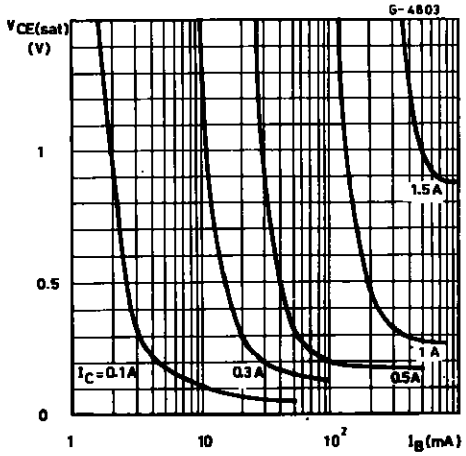
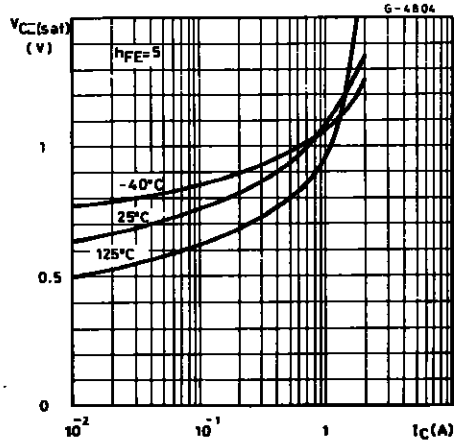
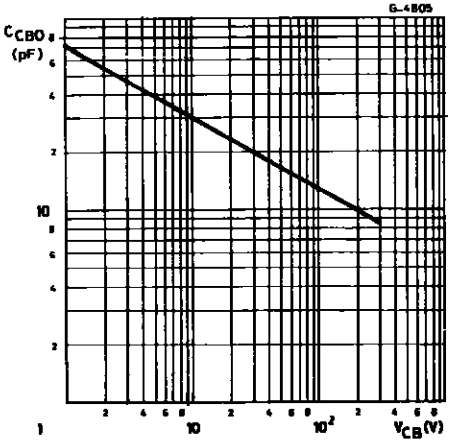


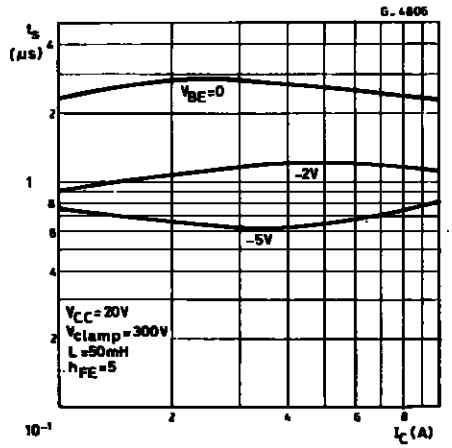
Base-Emitter Saturation Voltage



Collector-Base Capacitance



Switching Time Inductive Load



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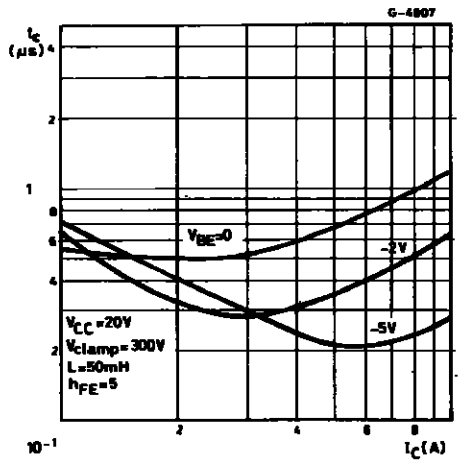
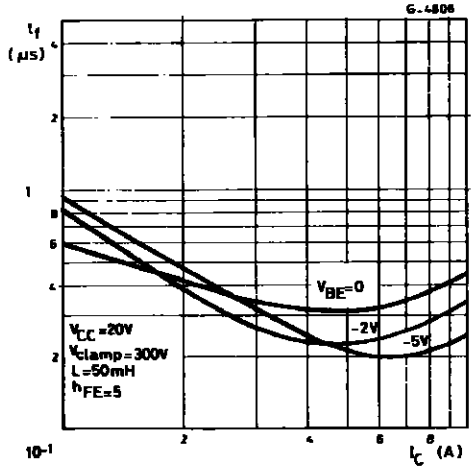
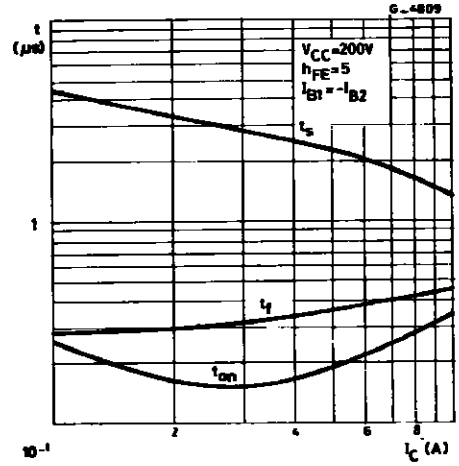


Switching Time Inductive Load

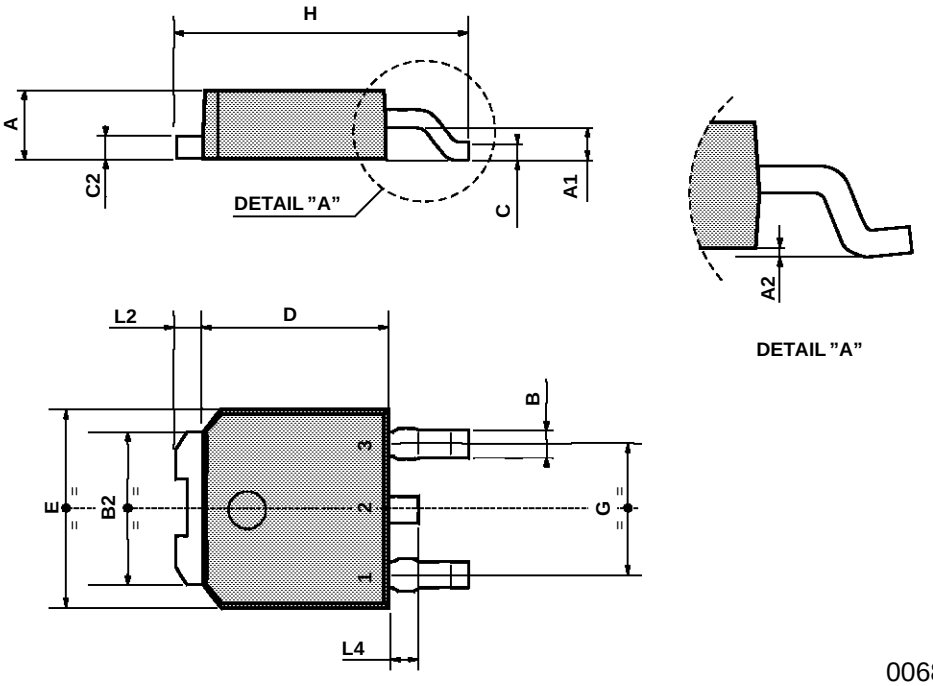


Switching Time Inductive Load



TO-252 (DPAK) MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	2.2		2.4	0.086		0.094
A1	0.9		1.1	0.035		0.043
A2	0.03		0.23	0.001		0.009
B	0.64		0.9	0.025		0.035
B2	5.2		5.4	0.204		0.212
C	0.45		0.6	0.017		0.023
C2	0.48		0.6	0.019		0.023
D	6		6.2	0.236		0.244
E	6.4		6.6	0.252		0.260
G	4.4		4.6	0.173		0.181
H	9.35		10.1	0.368		0.397
L2		0.8			0.031	
L4	0.6		1	0.023		0.039



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