

NPN SILICON POWER TRANSISTOR

- HIGH DC CURRENT GAIN
- LOW SATURATION VOLTAGE
- INSULATED PACKAGE FOR EASY MOUNTING

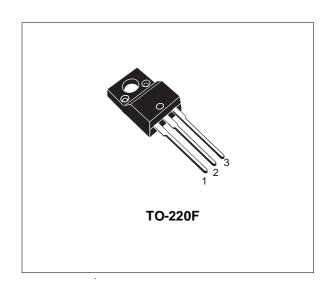
APPLICATIONS

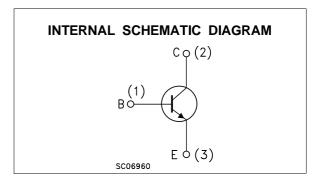
- GENERAL PURPOSE POWER AMPLIFIERS
- GENERAL PURPOSE SWITCHING

DESCRIPTION

The 2SD2012 is a silicon NPN power transistor housed in TO-220F insulated package.

It is inteded for power linear and switching applications.





ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage (I _E = 0)	60	V
V _{CEO}	Collector-Emitter Voltage (I _B = 0)	60	V
V _{EBO}	Emitter-Base Voltage (I _C = 0)	7	V
Ic	Collector Current	3	Α
I _{CM}	Collector Peak Current (tp < 5 ms)	6	Α
I_B	Base Current	0.5	Α
P _{tot}	Total Dissipation at T _c ≤ 25 °C	25	V
V _{isol}	Insulation Withstand Voltage (RMS) from All Three Leads to Exernal Heatsink	1500	V
T _{stg}	Storage Temperature	-65 to 150	°C
Tj	Max. Operating Junction Temperature	150	°C

October 2003 1/5

THERMAL DATA

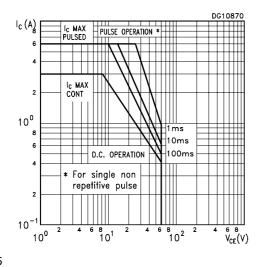
R _{thj-case}	Thermal Resistance Junction-case	Max	5	°C/W	1
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ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

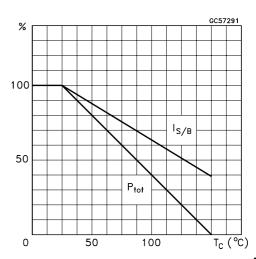
Symbol	Parameter	Test Conditions		Min.	Тур.	Max.	Unit
Ісво	Collector Cut-off Current (I _E = 0)	V _{CB} = 60 V				100	μΑ
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 7 V				100	μΑ
V _{(BR)CEO*}	Collector-Emitter Breakdown Voltage (I _B = 0)	I _C = 50 mA		60			V
V _{CE(sat)*}	Collector-Emitter Saturation Voltage	I _C = 2 A	$I_B = 0.2 A$		0.4	1	V
V _{BE} *	Base-Emitter Voltage	$I_C = 0.5 A$	$V_{CE} = 5 V$		0.75	1	V
h _{FE} *	DC Current Gain	I _C = 0.5 A I _C = 2 A	V _{CE} = 5 V V _{CE} = 5 V	100 20		320	
f _T	Transition frequency	V _{CE} = 5 V	I _C = 0.5 A		3		MHz
ССВО	Collector-Base Capacitance	V _{CB} = 10 V I _E = 0	f = 1 MHz		35		pF

^{*} Pulsed: Pulse duration = 300 μs, duty cycle ≤ 2 %

Safe Operating Area

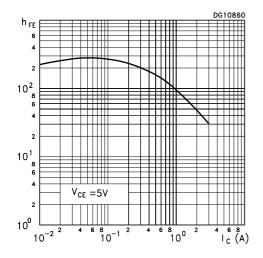


Derating Curve

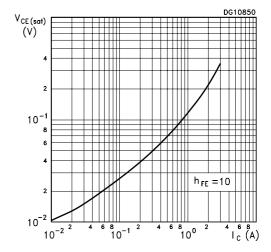


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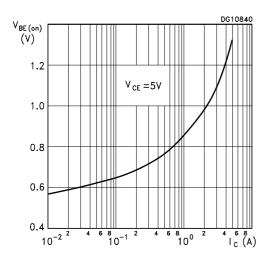
DC Current Gain



Collector Emitter Saturation Voltage



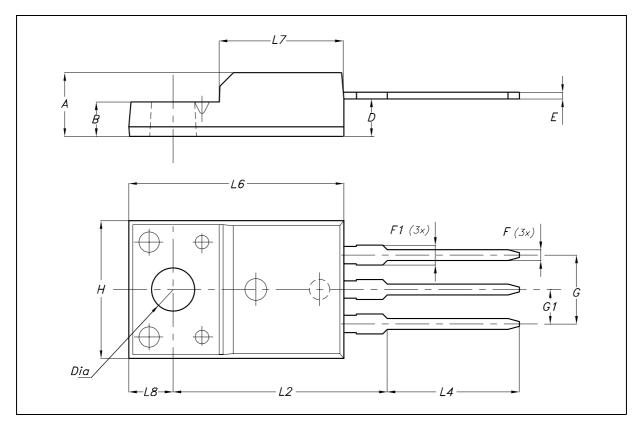
Base Emitter On Voltage



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TO-220F MECHANICAL DATA

DIM.	mm			inch			
Diwi.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
А	4.50		4.90	0.177		0.193	
В	2.34		2.74	0.092		0.108	
D	2.56		2.96	0.101		0.117	
E	0.45	0.50	0.60	0.018	0.020	0.024	
F	0.70		0.90	0.028		0.035	
F1			1.47			0.058	
G		5.08			0.200		
G1	2.34	2.54	2.74	0.092	0.100	0.108	
Н	9.96		10.36	0.392		0.408	
L2		15.80			0.622		
L4	9.45		10.05	0.372		0.396	
L6	15.67		16.07	0.617		0.633	
L7	8.99		9.39	0.354		0.370	
L8		3.30			0.130		
Dia	3.08		3.28	0.121		0.129	



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