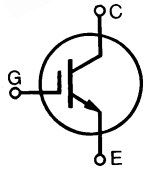
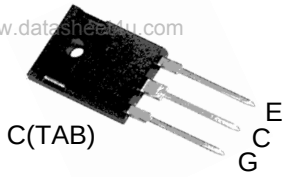


SG45N12T

Discrete IGBTs

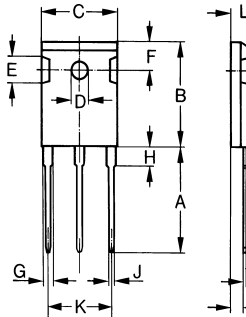
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G=Gate, C=Collector,
E=Emitter, TAB=Collector

Dimensions TO-247AD



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

Symbol	Test Conditions	Maximum Ratings	Unit
V_{CES} V_{CGR}	T _J =25°C to 150°C T _J =25°C to 150°C; R _{GE} =1 MΩ;	1200 1200	V
V_{GES} V_{GEM}	Continuous Transient	±20 ±30	V
I_{C25} I_{C90} I_{CM}	T _C =25°C; limited by leads T _C =90°C T _C =25°C, 1 ms	75 45 180	A
SSOA (RBSOA)	V _{GE} =15V; T _{VJ} =125°C; R _G =5 Ω Clamped inductive load	I _{CM} =90 @ 0.8 V _{CES}	A
P_C	T _C =25°C	300	W
T_J T_{JM} T_{stg}		-55...+150 150 -55...+150	°C
	Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10s Maximum Tab temperature for soldering SMD devices for 10s	300 260	°C °C
M_d	Mounting torque (M3)	1.13/10	Nm/lb.in.
Weight		6	g

(T_J=25°C, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
BV_{CES}	I _C =1mA; V _{GE} =0V	1200			V
V_{GE(th)}	I _C =750uA; V _{CE} =V _{GE}	2.5		5.0	V
I_{CES}	V _{CE} =V _{CES} ; T _J =25°C			250	uA
	V _{GE} =0V; T _J =125°C			2	mA
I_{GES}	V _{CE} =0V; V _{GE} =±20V			±100	nA
V_{CE(sat)}	I _C =I _{C90} ; V _{GE} =15V			2.5	V

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(T_J=25°C, unless otherwise specified)

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Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
g _{ts}	I _C =I _{C90} ; V _{CE} =10V Pulse test, t ≤ 300us, duty cycle ≤ 2%	33	44		S
I _{C(ON)}	V _{GE} =10V; V _{CE} =10V		220		A
C _{ies} C _{oes} C _{res}	V _{CE} =25V; V _{GE} =0V; f=1MHz		4700 255 89		pF
Q _g Q _{ge} Q _{gc}	I _C =I _{C90} ; V _{GE} =15V; V _{CE} =0.5V _{CES}		170 28 57		nC
t _{d(on)} t _{ri} t _{d(off)} t _{fi} E _{off}	Inductive load, T _J =25°C I _C =I _{C90} ; V _{GE} =15V; V _{CE} =0.8V _{CES} ; R _G =R _{off} =5Ω Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8V _{CES} higher T _J or increased R _G		55 28 370 390 14	800 700 25	ns ns ns ns mJ
t _{d(on)} t _{ri} E _{on} t _{d(off)} t _{fi} E _{off}	Inductive load, T _J =125°C I _C =I _{C90} ; V _{GE} =15V; V _{CE} =0.8V _{CES} ; R _G =R _{off} =5Ω Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8V _{CES} higher T _J or increased R _G		64 32 3.0 660 740 25		ns ns mJ ns ns mJ
R _{thJC}				0.42	K/W
R _{thCK}			0.25		K/W