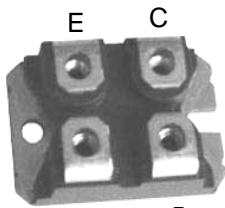
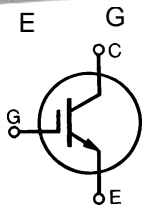


SG50N06S, SG50N06DS

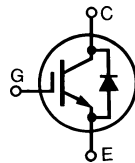
Discrete IGBTs



G=Gate, C=Collector,
E=Emitter

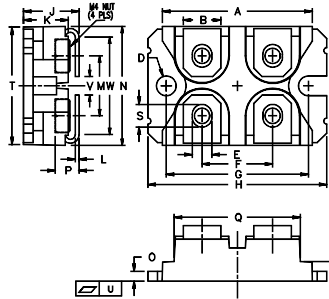


SG50N06S



SG50N06DS

Dimensions SOT-227(ISOTOP)



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.20	1.489	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	1.98	2.13	0.078	0.084
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.05	0.1	-0.002	0.004
V	3.30	4.57	0.130	0.180
W	0.780	0.830	0.031	0.033

Symbol	Test Conditions	Maximum Ratings	Unit
V _{CES}	T _J =25°C to 150°C	600	V
V _{CGR}	T _J =25°C to 150°C; R _{GE} =1 MΩ;	600	
V _{GES}	Continuous	±20	V
V _{GEM}	Transient	±30	
I _{C25}	T _C =25°C	75	A
I _{C90}	T _C =90°C	50	
I _{CM}	T _C =25°C, 1 ms	200	
SSOA (RBSOA)	V _{GE} =15V; T _{VJ} =125°C; R _G =10Ω Clamped inductive load, L=30uH	I _{CM} =100 @ 0.8 V _{CES}	A
P _c	T _C =25°C	250	W
T _J		-55...+150	°C
T _{JM}		150	
T _{stg}		-55...+150	
Ma	Mounting torque Terminal connection torque(M4)	1.5/13 1.5/13	Nm/lb.in.
Weight		30	g
	Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s	300	°C

(T_J=25°C, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
BV _{CES}	I _C =250uA; V _{GE} =0V	600			V
V _{GE(th)}	I _C =250uA; V _{CE} =V _{GE}	2.5		5	V
I _{CES}	V _{CE} =0.8V _{CES} ; V _{GE} =0V; T _J =125°C			200 1	uA mA
I _{GES}	V _{CE} =0V; V _{GE} =±20V			±100	nA
V _{CE(sat)}	I _C =I _{C90} ; V _{GE} =15V			2.5	V

SG50N06S, SG50N06DS

Discrete IGBTs

(T_J=25°C, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
g _{ts}	I _C =I _{C90} ; V _{CE} =10V Pulse test, t _{on} ≤300us, duty cycle≤2%	25	35		S
C _{ies} C _{oes} C _{res}	V _{CE} =25V; V _{GE} =0V; f=1MHz		4000 340 100		pF
Q _g Q _{ge} Q _{gc}	I _C =I _{C90} ; V _{GE} =15V; V _{CE} =0.5V _{CES}		110 30 40	180 50 100	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; L=100uH V _{CE} =0.8V _{CES} ; R _G =R _{off} =2.7Ω Remarks:Switching times may increase for V _{CE} (Clamp) > 0.8V _{CES} ; higher T _J or increased R _G		50 30 200 150 3		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; L=100uH V _{CE} =0.8V _{CES} ; R _G =R _{off} =2.7Ω Remarks:Switching times may increase for V _{CE} (Clamp) > 0.8V _{CES} ; higher T _J or increased R _G		50 25 3 280 250 4.2		ns ns mJ ns ns mJ
R _{thJC}				0.50	K/W
R _{thCK}			0.05		K/W

Reverse Diode (FRED)

(T_J=25°C, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
V _F	I _F =60A; T _{VJ} =150°C Pulse test, t _{on} ≤300us, duty cycle d≤2%; T _{VJ} =25°C			1.75 2.40	V
I _R	T _{VJ} =25°C; V _R =V _{RRM} T _{VJ} =150°C			650 2.5	uA mA
I _{RM}	I _F =I _{C90} ; V _{GE} =0V; -di _F /dt=100A/us; V _R =540V			8.0	A
t _{rr}	I _F =1A; -di _F /dt=50A/us; V _R =30V; T _J =25°C		35		ns
R _{thJC}				0.85	K/W