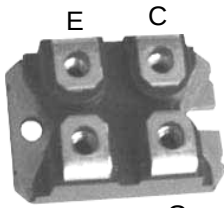
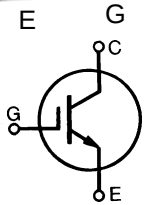


SG50N06S, SG50N06DS

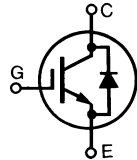
Discrete IGBTs



G=Gate, C=Collector,
E=Emitter

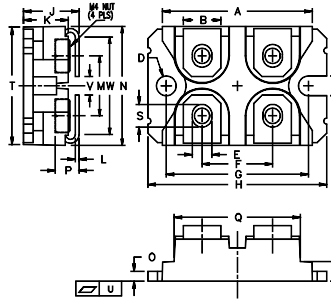


SG50N06S



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} V_{CGR}	$T_J=25^{\circ}\text{C}$ to 150°C $T_J=25^{\circ}\text{C}$ to 150°C ; $R_{GE}=1\text{ M}\Omega$;	600 600	V
V_{GES} V_{GEM}	Continuous Transient	± 20 ± 30	V
I_{C25} I_{C90} I_{CM}	$T_C=25^{\circ}\text{C}$ $T_C=90^{\circ}\text{C}$ $T_C=25^{\circ}\text{C}$, 1 ms	75 50 200	A
SSOA (RBSOA)	$V_{GE}=15\text{V}$; $T_{VJ}=125^{\circ}\text{C}$; $R_G=10\Omega$ Clamped inductive load, $L=30\mu\text{H}$	$I_{CM}=100$ @ $0.8 V_{CES}$	A
P_C	$T_C=25^{\circ}\text{C}$	250	W
T_J T_{JM} T_{stg}		$-55...+150$ 150 $-55...+150$	$^{\circ}\text{C}$
M_d	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	$^{\circ}\text{C}$

($T_J=25^{\circ}\text{C}$, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
BV_{CES}	$I_C=250\mu\text{A}$; $V_{GE}=0\text{V}$	600			V
$V_{GE(th)}$	$I_C=250\mu\text{A}$; $V_{CE}=V_{GE}$	2.5		5	V
I_{CES}	$V_{CE}=0.8V_{CES}$; $V_{GE}=0\text{V}$; $T_J=125^{\circ}\text{C}$			200 1	μA mA
I_{GES}	$V_{CE}=0\text{V}$; $V_{GE}=\pm 20\text{V}$			± 100	nA
$V_{CE(sat)}$	$I_C=I_{C90}$; $V_{GE}=15\text{V}$			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 ≤ 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 ≤ 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