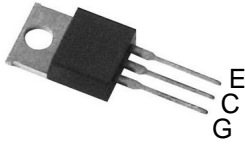
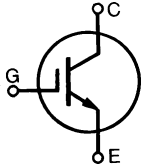


SG12N06P, SG12N06DP

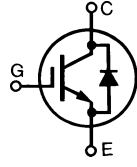
Discrete IGBTs



G=Gate, C=Collector, E=Emitter

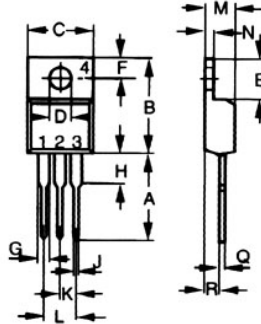


SG12N06P



SG12N06DP

Dimensions TO-220AB



Dim.	Inches		Millimeter	
	Min.	Max.	Min.	Max.
A	0.500	0.550	12.70	13.97
B	0.580	0.630	14.73	16.00
C	0.390	0.420	9.91	10.66
D	0.139	0.161	3.54	4.08
E	0.230	0.270	5.85	6.85
F	0.100	0.125	2.54	3.18
G	0.045	0.065	1.15	1.65
H	0.110	0.230	2.79	5.84
J	0.025	0.040	0.64	1.01
K	0.100	BSC	2.54	BSC
M	0.170	0.190	4.32	4.82
N	0.045	0.055	1.14	1.39
Q	0.014	0.022	0.35	0.56
R	0.090	0.110	2.29	2.79

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;	600 600	V
V_{GES} V_{GEM}	Continuous Transient	±20 ±30	V
I_{C25} I_{C90} I_{CM}	T _C =25°C T _C =90°C T _C =25°C, 1 ms	24 12 48	A
SSOA (RBSOA)	V _{GE} =15V; T _{VJ} =125°C; R _G =33Ω Clamped inductive load, L=300uH	I _{CM} =24 @ 0.8 V _{CES}	A
P_c	T _C =25°C	100	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	300	°C
M_d	Mounting torque with screw M3 Mounting torque with screw M3.5	0.45/4 0.55/5	Nm/lb.in.
Weight		4	g

(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		5.0	V
I_{CES}	V _{CE} =0.8V _{CES} ; T _J =25°C V _{GE} =0V; T _J =125°C			200 1.5	uA mA
I_{GES}	V _{CE} =0V; V _{GE} =±20V			±100	nA
V_{CE(sat)}	I _C =I _{C90} ; V _{GE} =15V			2.1	V

Sirectifier®

SG12N06P, SG12N06DP

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%	5	11		S
C _{ies} C _{oes} C _{res}	V _{CE} =25V; V _{GE} =0V; f=1MHz		860 100 15		pF
Q _g Q _{ge} Q _{gc}	I _C =I _{C90} ; V _{GE} =15V; V _{CE} =0.5V _{CES}		32 10 10		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=300uH V _{CE} =0.8V _{CES} ; R _G =R _{off} =18Ω Remarks:Switching times may increase for V _{CE} (Clamp) > 0.8V _{CES} higher T _J or increased R _G		20 20 150 120 0.5	250 270 0.8	ns ns ns ns mJ
t _{d(on)} t _{ri} E _{on} t _{d(off)} t _{fi} E _{off}	Inductive load, T _J =25°C I _C =I _{C90} ; V _{GE} =15V; L=300uH V _{CE} =0.8V _{CES} ; R _G =R _{off} =18Ω Remarks:Switching times may increase for V _{CE} (Clamp) > 0.8V _{CES} higher T _J or increased R _G		20 20 0.15 200 200 0.8		ns ns mJ ns ns mJ
R _{thJC}	IGBT			1.25	K/W
R _{thCK}			0.25		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 =15A; T _{VJ} =150°C T _{VJ} =25°C		1.3	2.5	V
I _{RM}	V _R =100V; I _F =25A; -di _F /dt=100A/us L≤0.05uH; T _{VJ} =100°C		2	2.5	A
t _{rr}	I _F =1A; -di _F /dt=50A/us; V _R =30V; T _J =25°C		35		ns
R _{thJC}	Diode			1.6	K/W