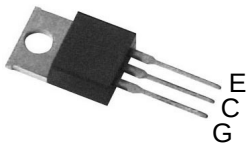
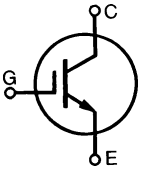
SG12N06P, SG12N06DP

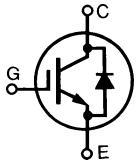
Discrete IGBTs



G=Gate, C=Collector, E=Emitter

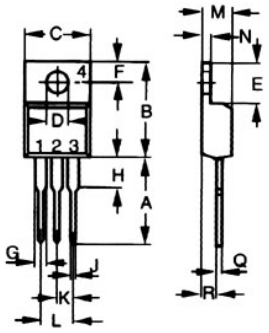


SG12N06P



SG12N06DP

Dimensions TO-220AB



Dim.	Inches		Milimeter	
	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			200	uA
	V_{GE}=0V; T_J=125°C			1.5	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≤300us, duty cycle≤2%	5	11		S
C_{ies}			860		
C_{oes}	V_{CE}=25V; V_{GE}=0V; f=1MHz		100		pF
C_{res}			15		
Q_g			32		
Q_{ge}	I_C=I_{C90}; V_{GE}=15V; V_{CE}=0.5V_{CES}		10		nC
Q_{gc}			10		
$t_{d(on)}$	Inductive load, T_J=25°C		20		ns
t_{ri}	I_C=I_{C90}; V_{GE}=15V; L=300uH		20		ns
$t_{d(off)}$	V_{CE}=0.8V_{CES}; R_G=R_{off}=18Ω		150	250	ns
t_{fi}	Remarks:Switching times may increase for V_{CE}(Clamp) > 0.8V_{CES}, higher T_J or		120	270	ns
E_{off}	increased R_G		0.5	0.8	mJ
$t_{d(on)}$	Inductive load, T_J=25°C		20		ns
t_{ri}	I_C=I_{C90}; V_{GE}=15V; L=300uH		20		ns
E_{on}	V_{CE}=0.8V_{CES}; R_G=R_{off}=18Ω		0.15		mJ
$t_{d(off)}$	Remarks:Switching times may increase		200		ns
t_{fi}	for V_{CE}(Clamp) > 0.8V_{CES}, higher T_J or		200		ns
E_{off}	increased R_G		0.8		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/dt=50A/us; V_R=30V; T_J=25°C		35		ns
R_{thJC}	Diode			1.6	K/W

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