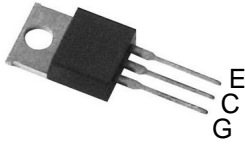
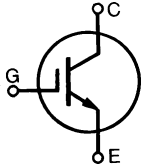


SG15N12P, SG15N12DP

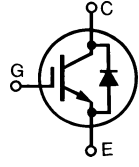
Discrete IGBTs



G=Gate, C=Collector, E=Emitter

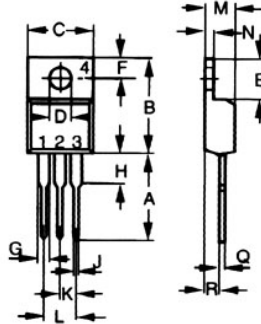


SG15N12P



SG15N12DP

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; | 1200 1200 | 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 | 30 15 60 | A |
| SSOA (RBSOA) | V _{GE} =15V; T _{VJ} =125°C; R _G =10Ω Clamped inductive load | I _{CM} =40 @ 0.8 V _{CES} | A |
| P_c | T _C =25°C | 150 | 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} =V _{CES} ; T _J =25°C V _{GE} =0V; T _J =125°C | | | 100 3.5 | uA mA |
| I_{GES} | V _{CE} =0V; V _{GE} =±20V | | | ±100 | nA |
| V_{CE(sat)} | I _C =I _{C90} ; V _{GE} =15V | | | 3.2 | V |

Sirectifier®

SG15N12P, SG15N12DP

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% | 12 | 15 | | S |
| C _{ies} C _{oes} C _{res} | V _{CE} =25V; V _{GE} =0V; f=1MHz | | 1720 95 35 | | pF |
| Q _g Q _{ge} Q _{gc} | I _C =I _{C90} ; V _{GE} =15V; V _{CE} =0.5V _{CES} | | 69 13 26 | | 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} =960V; R _G =R _{off} =10Ω Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8V _{CES} ; higher T _J or increased R _G | | 25 15 180 160 1.75 | 280 320 3.0 | 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} =960V; R _G =R _{off} =10Ω Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8V _{CES} ; higher T _J or increased R _G | | 25 18 0.60 300 360 3.5 | | ns ns mJ ns ns mJ |
| R _{thJC} | | | | 0.83 | K/W |
| R _{thCK} | | | 0.5 | | 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 =20A; V _{GE} =0V I _F =20A; V _{GE} =0V; T _J =125°C | | 2.6 2.1 | 2.8 | V |
| I _F | T _C =25°C T _C =90°C | | | 33 20 | A |
| I _{RM} | I _F =20V; -di _F /dt=400A/us; V _R =600V | | 15 | | A |
| t _{rr} | V _{GE} =0V; T _J =125°C I _F =1A; -di _F /dt=100A/us; V _R =30V; V _{GE} =0V | | 200 40 | | ns |
| R _{thJC} | | | | 1.6 | K/W |

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