# SLA5058



N-channel
General purpose



External dimensions Ⓐ ··· SLA

## Absolute maximum ratings

(Ta=25°C)

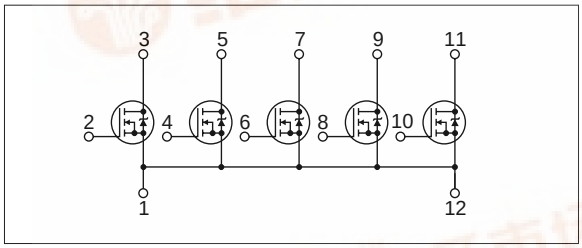
| Symbol | Ratings | Unit |
|---|---|---|
| $V_{DSS}$ | 150 | V |
| $V_{GSS}$ | +20, –10 | V |
| $I_D$ | ±7A | |
| $I_{D\ (pulse)}$ | ±15 (PV≤1ms, duty≤1%) | A |
| $E_{AS}$* | 100 | mJ |
| $P_T$ | 5 ($T_a$=25°C, with all circuits operating, without heatsink) | W |
| | 35 ($T_c$=25°C, with all circuits operating, with infinite heatsink) | W |
| $\theta$ j-a | 25 (Junction-Air, $T_a$=25°C, with all circuits operating) | °C/W |
| $\theta$ j-c | 3.57 (Junction-Case, $T_c$=25°C, with all circuits operating) | °C/W |
| $V_{ISO}$ | 1000 (Between fin and lead pin, AC) | Vrms |
| Tch | 150 | °C |
| Tstg | –40 to +150 | °C |

* : $V_{DD}$=25V, L=3.4mH, $I_D$=7A, unclamped, $R_G$=50Ω

## Electrical characteristics

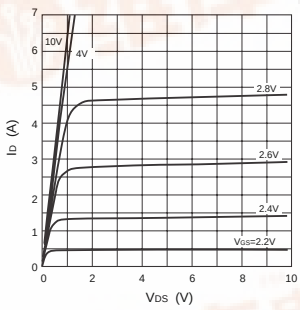
| Symbol | Specification min | typ | max | Unit | Conditions |
|---|---|---|---|---|---|
| $V_{(BR)DSS}$ | 150 | | | V | $I_D$=100μA, $V_{GS}$=0V |
| $I_{GSS}$ | | | 100 | nA | $V_{GS}$=20V |
| $I_{DSS}$ | | | 100 | μA | $V_{DS}$=150V, $V_{GS}$=0V |
| $V_{TH}$ | 1.0 | | 2.0 | V | $V_{DS}$=10V, $I_D$=250μA |
| Re(yfs) | 4 | 9 | | S | $V_{DS}$=10V, $I_D$=3.5A |
| $R_{DS(ON)}$ | | 150 | 200 | mΩ | $V_{GS}$=10V, $I_D$=3.5A |
| | | 170 | 230 | mΩ | $V_{GS}$=4V, $I_D$=3.5A |
| Ciss | | 870 | | pF | $V_{DS}$=10V |
| Coss | | 320 | | pF | f=1.0MHz |
| Crss | | 210 | | pF | $V_{GS}$=0V |
| td(on) | | 25 | | ns | $I_D$=3.5A |
| tr | | 55 | | ns | $V_{DD}$≒70V |
| td(off) | | 80 | | ns | $R_L$=20Ω |
| tf | | 50 | | ns | $V_{GS}$=5V |
| $V_{SD}$ | | 1.0 | 1.5 | V | $I_{SD}$=7A, $V_{GS}$=0V |
| trr | | 500 | | ns | $I_F$=±100mA |

## ■Equivalent circuit diagram

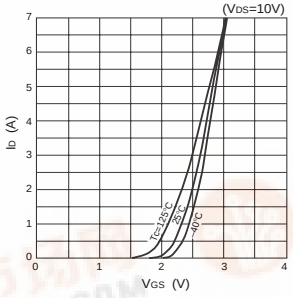



## Characteristic curves

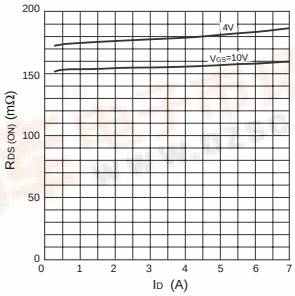
$I_D$-$V_{DS}$ Characteristics (Typical)



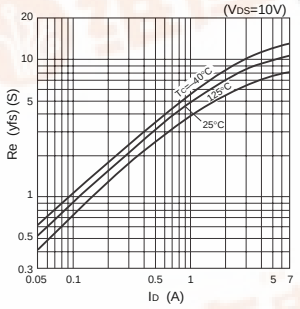

$I_D$-$V_{GS}$ Characteristics (Typical)



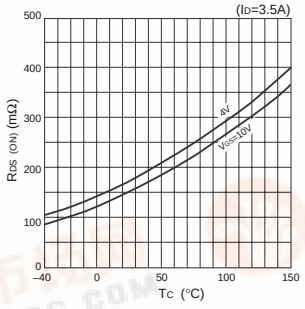

$R_{DS(ON)}$-$I_D$ Characteristics (Typical)



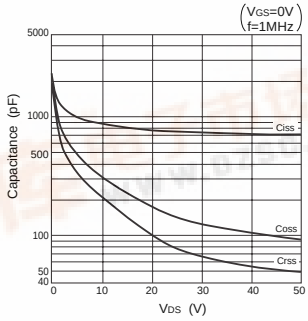

Re (yfs)-$I_D$ Characteristics (Typical)



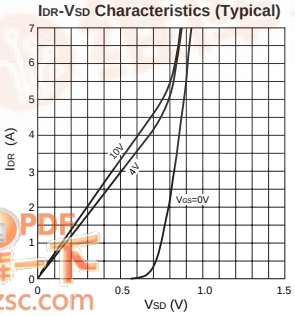

$R_{DS}$-$T_C$ Characteristics (Typical)



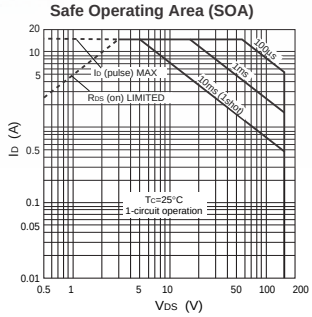

Capacitance-$V_{DS}$ Characteristics (Typical)




$I_{DR}$-$V_{SD}$ Characteristics (Typical)




Safe Operating Area (SOA)




$P_T$-Ta Characteristics