

**Rectifier Diode****D7100W0300**

$V_{RRM} = 300\text{ V}$   
 $I_{FAVM} = 7100\text{ A}$   
 $I_{FRMS} = 11200\text{ A}$   
 $I_{FSM} = 55000\text{ A}$   
 $V_{FO} = 0.75\text{ V}$   
 $r_o = 0.025\text{ m}\Omega$



- Special for welding machine
- Optimized for high current rectifiers
- Very low on-state voltage
- Very low thermal resistance

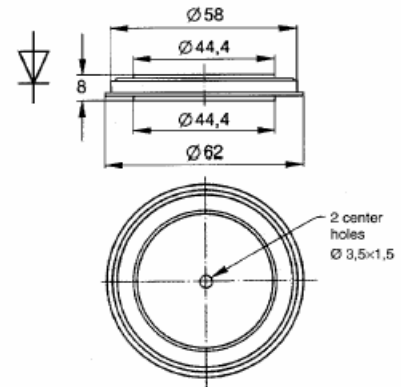


Fig.1 Outline drawing

**Blocking characteristics**

$V_{RRM}$ Repetitive peak reverse voltage	300V	Half sine wave, $t_p = 10\text{ms}$ , $f = 50\text{Hz}$
$V_{RSM}$ Maximum peak reverse voltage	400V	Half sine wave, $t_p = 10\text{ms}$ , $f = 50\text{Hz}$
$I_{RRM}$ Repetitive peak reverse current	$\leq 10\text{mA}$	$T_j = 170^\circ\text{C}$ $V_R = V_{RRM}$

**Mechanical characteristics**

$F_m$ Mounting force	min.	19 KN
	max.	24 KN
$m$ Weight		0.15 kg

**On-state characteristics**

$I_{FAVM}$ Max. average on-state current	7100A	Half sine wave, $T_c = 85^\circ\text{C}$
$I_{FRMS}$ Max. RMS on-state current	11200A	
$I_{FSM}$ Max. peak non-repetitive surge current	55000A	$t_p = 10\text{ms}$
	60000A	$t_p = 8.3\text{ms}$
$\int I^2 dt$ Max. surge current integral	15000 $\text{KA}^2\text{S}$	$t_p = 10\text{ms}$
	14800 $\text{KA}^2\text{S}$	$t_p = 8.3\text{ms}$
$V_{Fm}$ Max. on-state voltage	$\leq 1.03\text{V}$	$I_F = 5000\text{A}$ $T_j = 25^\circ\text{C}$
$V_{FO}$ Threshold voltage	0.66V	Approximation for
$r_o$ Slope resistance	0.032 $\text{m}\Omega$	$I_F = 5\text{-}15\text{ kA}$ $T_j = 170^\circ\text{C}$

**Thermal characteristics**

$T_j$ Operating junction temperature	$-40 \dots 170^\circ\text{C}$	Half sine wave, $T_c = 85^\circ\text{C}$
$R_{th(j-c)}$ Thermal resistance junction to case	$\leq 0.02^\circ\text{C/W}$	Single side cooled
	$\leq 0.01^\circ\text{C/W}$	Double side cooled
$R_{th(c-h)}$ Thermal resistance case to heatsink	$\leq 0.01^\circ\text{C/W}$	Single side cooled
	$\leq 0.005^\circ\text{C/W}$	Double side cooled

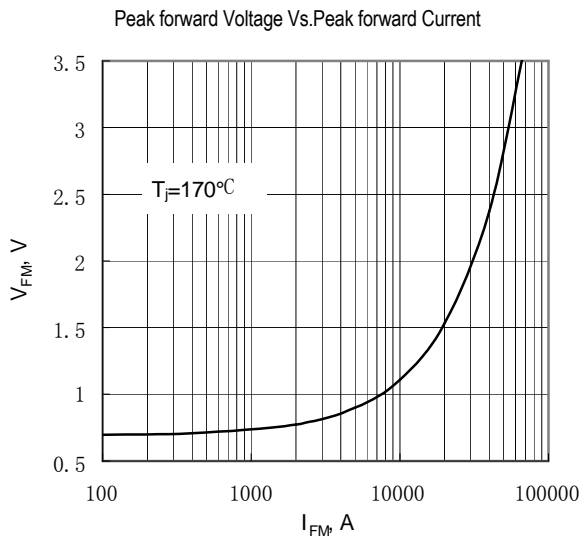


Fig.2 Peak forward Voltage Vs. Peak forward Current

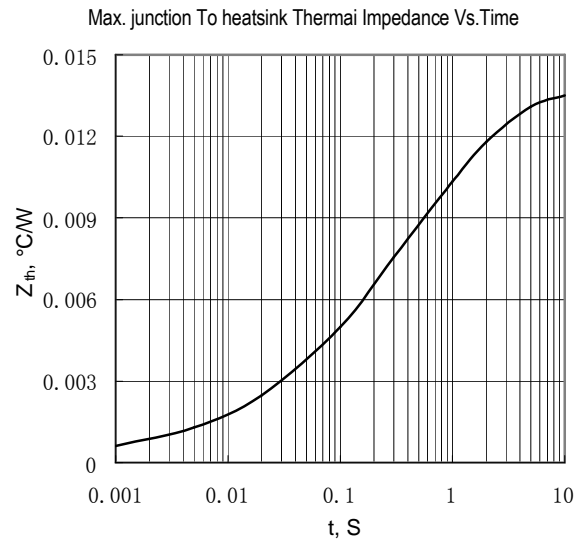


Fig.3 Max. junction To heatsink Thermal Impedance Vs. Time

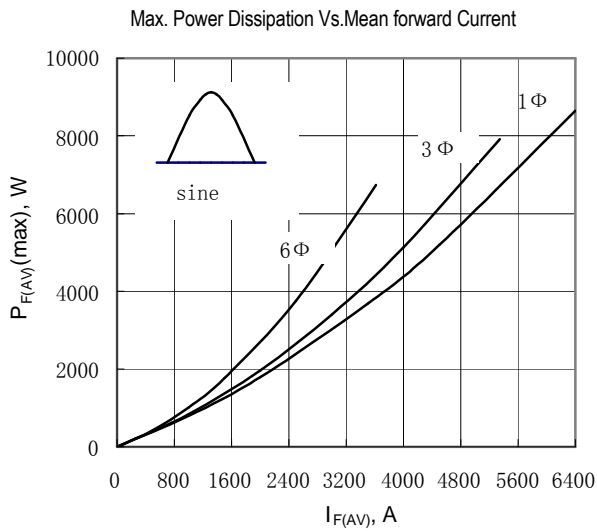


Fig.4 Max. Power Dissipation Vs. Mean forward Current

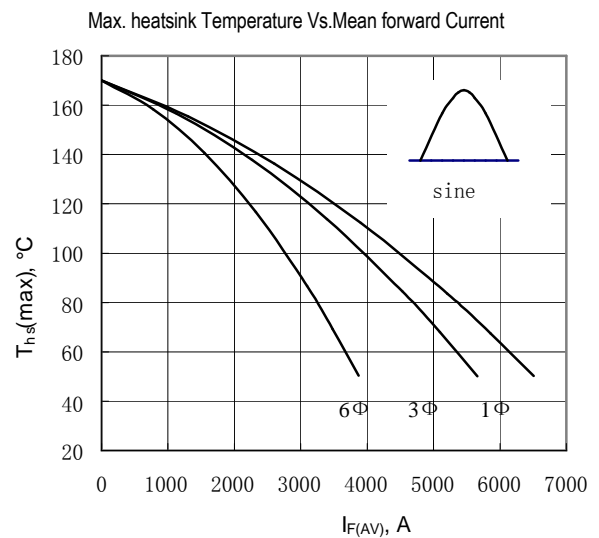


Fig.5 heatsink Temperature Vs. Mean forward Current

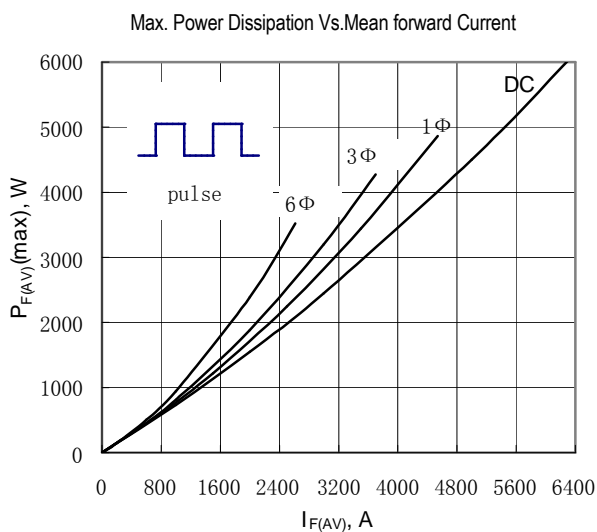


Fig.6 Max. Power Dissipation Vs. Mean forward Current

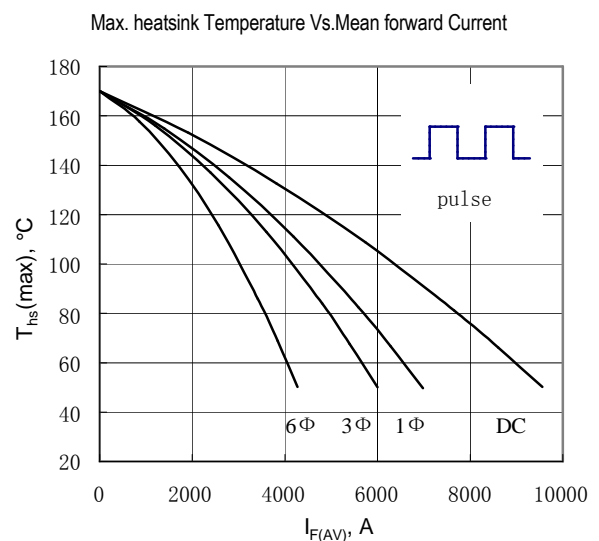


Fig.7 Max. heatsink Temperature Vs. Mean forward Current

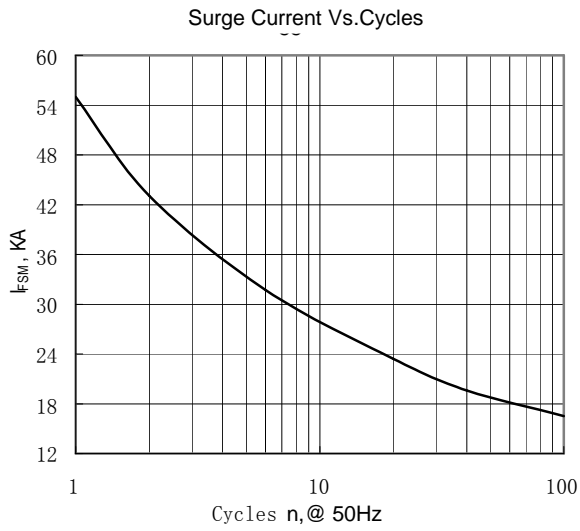


Fig.8 Surge Current Vs.Cycles

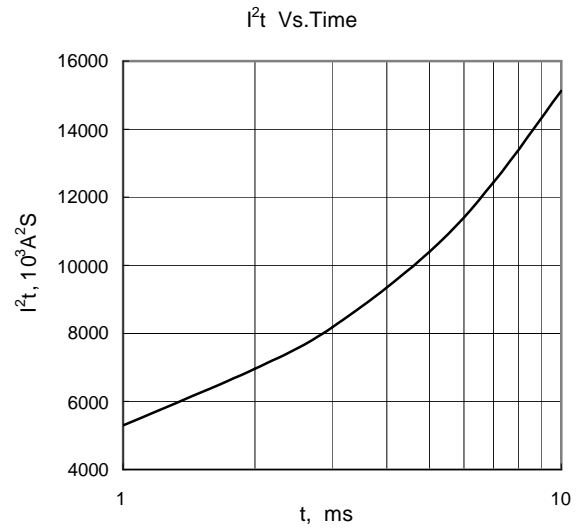


Fig.9 I2t Vs.Time

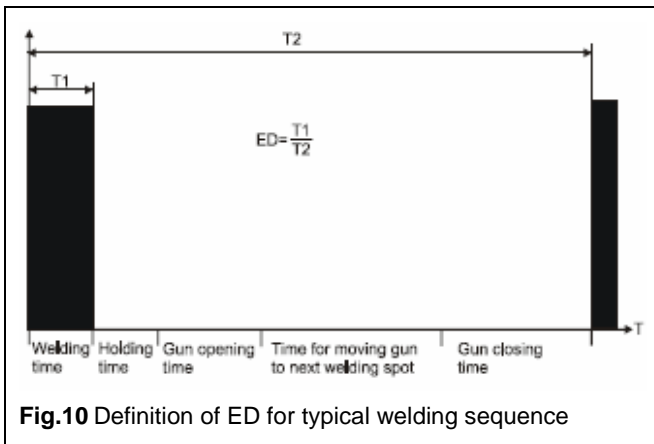


Fig.10 Definition of ED for typical welding sequence

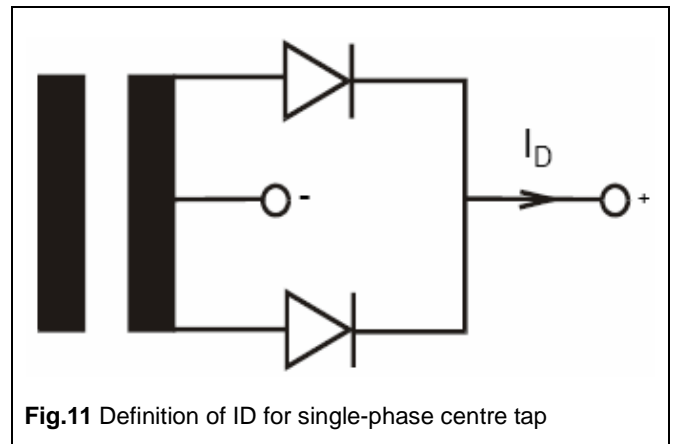


Fig.11 Definition of ID for single-phase centre tap