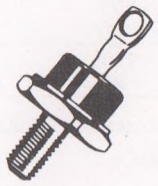
SGS-THOMSON MICROELECTRONICS

ESM 244-50 → 600

FAST RECOVERY RECTIFIER DIODES

- FAST RECOVERY TIME
- LOW FORWARD RECOVERY TIME
- HIGH SURGE CURRENT CAPABILITY
- AVAILABLE UP TO 600V

(Metric thread)



DO 5
(Metal)

APPLICATIONS

- DC AND AC MOTOR CONTROL
- SWITCHMODE POWER SUPPLY
- HIGH FREQUENCY CHOPPERS
- HIGH FREQUENCY RECTIFIERS

ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
I_{FRM}	Repetitive Peak Forward Current	$t_p \leq 20\mu s$	500	A
$I_{F(AV)}$	Average Forward Current	$T_C = 90°C$	60	A
I_{FSM}	Surge non Repetitive Forward Current	$t_p = 10ms$ Sinusoidal	800	A
P_{tot}	Power Dissipation	$T_C = 90°C$	110	W
T_{stg} T_j	Storage and Junction Temperature Range		– 65 to 165	°C

Symbol	Parameter	ESM 244–							Unit
		50	100	200	300	400	500	600	
V_{RRM}	Repetitive Peak Reverse Voltage	50	100	200	300	400	500	600	V

THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction-case	0.7	°C/W

ELECTRICAL CHARACTERISTICS

STATIC CHARACTERISTICS

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
I_R	T_j = 100°C	$V_R = V_{RRM}$			6	mA
V_F	T_j = 25°C	I_F = 60A			1.5	V

RECOVERY CHARACTERISTICS

Symbol	Test Conditions			Min.	Typ.	Max.	Unit
t_{rr}	T_j = 25°C V_R = 30V	I_F = 1A	$di_F/dt = -15A/\mu s$			200	ns
Q_{rr}	T_j = 25°C V_R = 30V	I_F = 1A	$di_F/dt = -15A/\mu s$			0.3	µC
I_{RM}	T_j = 25°C V_R = 30V	I_F = 1A	$di_F/dt = -15A/\mu s$			3	A

To evaluate the conduction losses use the following equations :

$V_F = 1.15 + 0.004\ I_F$ $\qquad P = 1.15 \times I_{F(AV)} + 0.004\ I_F{}^2{}_{(RMS)}$