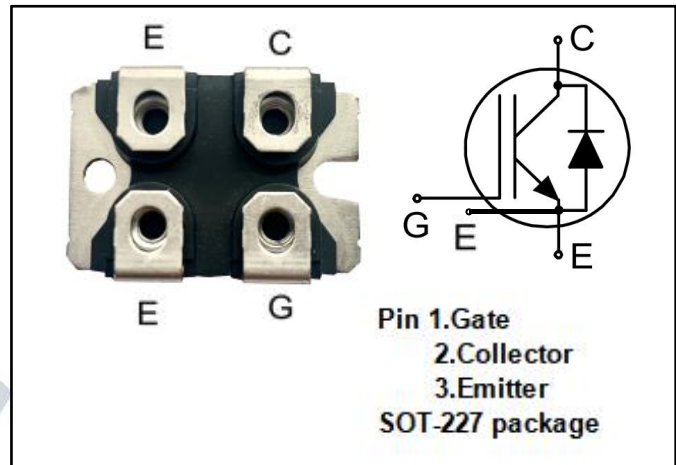


DESCRIPTION

- Low Saturation Voltage: $V_{CE(sat)}=2.35V@I_C=110A$
- High Current Handling Capability
- High Power Density
- Short Circuit Capabiltiy

APPLICATIONS

- Synchronous Rectification in SMPS
- Power Inverters
- UPS,PFC
- High Frequency Power Inverters



ABSOLUTE MAXIMUM RATINGS

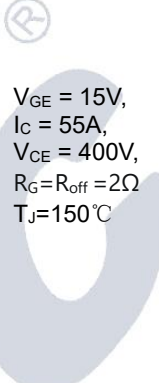
SYMBOL	PARAMETER	VALUE	UNIT
V_{CES}	Collector-Emitter Voltage	650	V
V_{GES}	Gate-Emitter Voltage	± 20	V
I_C	Collector Current-Continuous @ $T_C=25^\circ C$	210	A
I_C	Collector Current-Continuous @ $T_C=110^\circ C$	110	A
I_{CM}	Pulsed Collector Current	470	A
I_F	Diode Forward Current @ $T_C=110^\circ C$	70	A
P_D	Power Dissipation , $T_C=25^\circ C$	750	W
T_j	Max. Operating Junction Temperature	175	$^\circ C$
T_{stg}	Storage Temperature Range	-55~175	$^\circ C$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case IGBT	0.3	$^{\circ}C/W$
$R_{th\ j-c}$	Thermal Resistance, Junction to Case Diode	0.45	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V_{CES}	Collector-Emitter Breakdown Voltage	$V_{GE}=0; I_C=0.25mA$	650	--	--	V
$V_{GE(TH)}$	Gate-Emitter Threshold Voltage	$V_{GE}=V_{CE}; I_C=0.25mA$	4.5	--	6.5	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=110A; V_{CE}=15V, T_C=25^{\circ}C$	--	1.98	2.35	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=110A; V_{CE}=15V, T_C=150^{\circ}C$	--	2.34	--	V
I_{CES}	Zero Gate Voltage Collector Current	$V_{CE}=650V; V_{GE}=0$	-	--	50	μA
I_{CES}	Zero Gate Voltage Collector Current	$V_{CE}=650V; V_{GE}=0, T_C=150^{\circ}C$	-	--	3	mA
I_{GES}	Gate-Emitter Leakage Current	$V_{GE}=\pm 20V; V_{CE}=0$	--	--	± 100	nA
g_{ts}	Forward Transconductance	$I_C=60A; V_{CE}=15V$	--	42	--	S
C_{ies}	Input Capacitance	$V_{GS}=0V, V_{CS}=25V, f=1.0MHz$	--	3722	--	pF
C_{oes}	Output Capacitance		--	460	--	
C_{res}	Reverse Transfer Capacitance		--	155	--	
Q_g	Total Gate Charge	$V_{GE}=15V, I_C=110A, V_{CE}=0.5V_{CES}$	--	195	--	nC
Q_{gs}	Gate-Source Charge		--	40	--	
Q_{gd}	Gate-Drain Charge		--	80	--	

SYMBOL	PARAMETER	CONDITIONS	MIN	TYPE	MAX	UNIT
$t_{d(on)}$	Turn-on Delay Time	$V_{GE} = 15V,$ $I_C = 55A,$ $V_{CE} = 400V,$ $R_G = R_{off} = 2\Omega$ $T_J = 25^\circ C$	--	40	--	ns
t_r	Turn-on Rise Time		--	45	--	
E_{on}	Turn-on switching losses		--	2.5	--	mJ
$t_{d(off)}$	Turn-off Delay Time		--	150	--	ns
t_f	Turn-off Fall Time		--	30	--	
E_{off}	Turn-off switching losses		--	0.7	--	mJ
$t_{d(on)}$	Turn-on Delay Time	 $V_{GE} = 15V,$ $I_C = 55A,$ $V_{CE} = 400V,$ $R_G = R_{off} = 2\Omega$ $T_J = 150^\circ C$	--	35	--	ns
t_r	Turn-on Rise Time		--	42	--	ns
E_{on}	Turn-on switching losses		--	3.0	--	mJ
$t_{d(off)}$	Turn-off Delay Time		--	134	--	ns
t_f	Turn-off Fall Time		--	45	--	ns
E_{off}	Turn-off switching losses		--	0.87	--	mJ

REVERSE DIODE (FRED)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYPE	MAX	UNIT
V_F	Diode Forward Voltage	$I_F = 100A; T_C = 25^\circ C$	--	1.9	2.4	V
V_F	Diode Forward Voltage	$I_F = 100A; T_C = 150^\circ C$	--	2.0	--	V
I_{RM}	Reverse recovery current	$V_R = 300V:$ $I_F = 100A; -diF/dt = 1500A/us$ $T_J = 150^\circ C$	--	95	--	A
t_{rr}	Reverse Recovery Time		--	110	--	ns

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