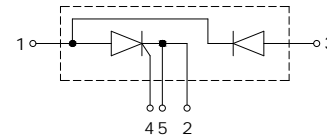


PRELIMINARY DATASHEET
1600V 55A, Thyristor and Diode in Series Configuration in iQPak® Power Module Package



FEATURES

- High voltage
- Low on-state voltage
- Suitable for over voltage control, motor control circuit and heating control system
- Industrial standard package
- Pb-free finished; **RoHS compliant**



MAXIMUM RATINGS (Thyristor), $T_C = 25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Value	Units
Average on-state current $T_C = 65^\circ\text{C}$, 180° conduction half sine wave	$I_{T(AV)}$	55	A
Continuous RMS on-state current as AC switch	$I_{T(RMS)}$	86	
Non-repetitive surge peak on-state current $T_J = 125^\circ\text{C}$, $t_p = 10$ ms, applied rated V_{RRM}	I_{TSM}	1000	
I^2t value for fusing $T_J = 125^\circ\text{C}$, $t_p = 10$ ms, applied rated V_{RRM}	I^2t	5000	A \cdot s
Peak gate current $T_J = 125^\circ\text{C}$	I_{GM}	2.5	A
Maximum repetitive peak off-state voltage $I_R = 100\mu\text{A}$	V_{DRM}	1600	V
Maximum repetitive reverse voltage $I_R = 100\mu\text{A}$	V_{RRM}	1600	
Maximum reverse leakage current	I_{RRM}	0.2	mA
Maximum direct leakage current	I_{DRM}	0.2	
Operating junction and storage temperature	T_J, T_{stg}	-40... +125	$^\circ\text{C}$

MAXIMUM RATINGS (Diode), at $T_J = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Value	Units
Repetitive peak reverse voltage	V_{RRM}	1600	V
Average forward current 180° conduction, half sine wave, $T_C = 100^\circ\text{C}$	$I_{F(AV)}$	70	A
Surge non-repetitive forward current $t_p = 10$ ms, no voltage reapplied, half sine wave	I_{FSM}	1300	
Operating junction and storage temperature	T_J, T_{stg}	-40... +150	$^\circ\text{C}$

Thermal and Isolation Characteristics

Parameter	Symbol	Max. Value	Units
Thyristor Thermal resistance, junction to case	R_{thJC}	0.44	$^\circ\text{C} / \text{W}$
Diode Thermal resistance, junction to case	R_{thJC}	0.33	
Isolation voltage, RMS (measured between terminals and mounting base, 50-60 Hz, for 1-3 seconds)	V_{iso}	3000	V

Electrical Characteristics (Thyristor), at $T_j = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Maximum required DC gate current to trigger	I_{GT}		-	-	100	mA
Maximum required DC gate voltage to trigger	V_{GT}	Resistive load	-	-	1.5	V
Maximum holding current	I_H	$T_j = 25^\circ\text{C}$, anode supply 6 V, resistive load, $I_T = 1\text{A}$	-	-	220	mA
Maximum latching current	I_L	$T_j = 25^\circ\text{C}$, anode supply 6 V, resistive load	-	-	400	
Maximum rate of rise of off-state voltage	dV/dt	$T_j = T_{jmax}$ linear to 67% V_{DRM}	-	-	1000	V/ μs
Maximum peak on-state voltage	V_{TM}	172 A	-	-	1.85	V
Maximum gate power	P_{GM}		-	10	-	W

Electrical Characteristics (Diode), at $T_j = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Static Characteristics					
Reverse leakage current $V_R = 1600\text{V}$	I_R	-	-	10	mA
Forward voltage drop $I_F = 70\text{A}$	V_F	-	1.1	-	V

Package Outline Drawing

