

62mm module with fast Trench/Fieldstop IGBT and Fast Recovery Diode

Features

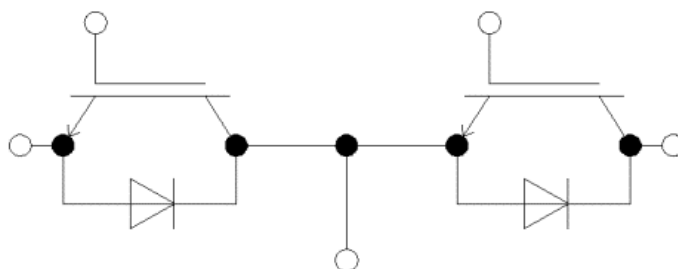
- Low Switching Losses
- Low V_{CEsat}
- Low $V_{CE(sat)}$ with Positive Temperature Coefficient

Applications

- Motor Drives
- UPS Systems
- High Power Inverter



Equivalent Circuit Schematic



**IGBT - Inverter
Maximum Rated Values**

Symbol	Description	Conditions	Values	Unit
V_{CES}	Collector-Emitter Voltage	$T_{vj}=25^{\circ}C$	1200	V
V_{GES}	Gate-Emitter Peak Voltage	$T_{vj}=25^{\circ}C$	± 20	V
I_C	Continuous DC Collector Current	$T_C=100^{\circ}C$	150	A
I_{CRM}	Repetitive Peak Collector Current	$t_p=1ms$	300	A
P_{tot}	Total Power Dissipation	$T_C=25^{\circ}C, T_{vjmax}=175^{\circ}C$	1500	W

Characteristic Values

Symbol	Description	Conditions	Values			Unit
			Min.	Typ.	Max.	
V _{CE(sat)}	Collector-Emitter Saturation Voltage	V _{GE} =15V, I _C =150A, T _{vj} =25°C	---	2.2	--	V
		V _{GE} =15V, I _C =150A, T _{vj} =125°C	---	2.5	--	V
V _{GE(th)}	Gate Threshold Voltage	V _{GE} =V _{CE} , I _C =3.8mA	5.0	5.8	6.5	V
I _{CES}	Collector-Emitter Cut-Off Current	V _{CE} =1200V, V _{GE} =0V	---	---	1	mA
I _{GES}	Gate-Emitter Leakage Current	V _{GE} =20V, V _{CE} =0V	---	---	600	nA
R _{Gint}	Internal Gate Resistor	T _{vj} =25°C	---	3.8	---	Ω
C _{ies}	Input Capacitance	V _{CE} =25V, V _{GE} =0V, f=1MHz	---	11.5	---	nF
C _{oes}	Output Capacitance		---	1.0	---	nF
C _{res}	Reverse Transfer Capacitance		---	0.4	---	nF
t _{d(on)}	Turn-on Delay Time	V _{CC} =600V V _{GE} =±15V I _C =150A R _G =2.0Ω Inductive Load T _{vj} =25°C	---	139	---	ns
t _r	Turn-on Rise Time		---	37	---	ns
t _{d(off)}	Turn-off Delay Time		---	192	---	ns
t _f	Turn-off Fall Time		---	128	---	ns
E _{on}	Turn-on Switching Loss		---	7.9	---	mJ
E _{off}	Turn-off Switching Loss		---	8.4	---	mJ
I _{SC}	Short Circuit Data	V _{GE} ≤15V, V _{CC} =600V t _p ≤10μs, T _{vj} =25°C	---	518	---	A
R _{thJC}	Thermal Resistance, Junction to Case	Per IGBT	---	0.1	---	K/W
T _{VJ OP}	Virtual Junction Temperature	Under Switching	-40	---	150	°C

**Diode - Inverter
Maximum Rated Values**

Symbol	Description	Conditions	Values	Unit
V _{RRM}	Repetitive Peak Reverse Voltage	T _{vj} =25°C	1200	V
I _F	Continuous DC Forward Current		150	A
I _{FRM}	Repetitive Peak Collector Current	t _p =1ms	300	A

Characteristic Values

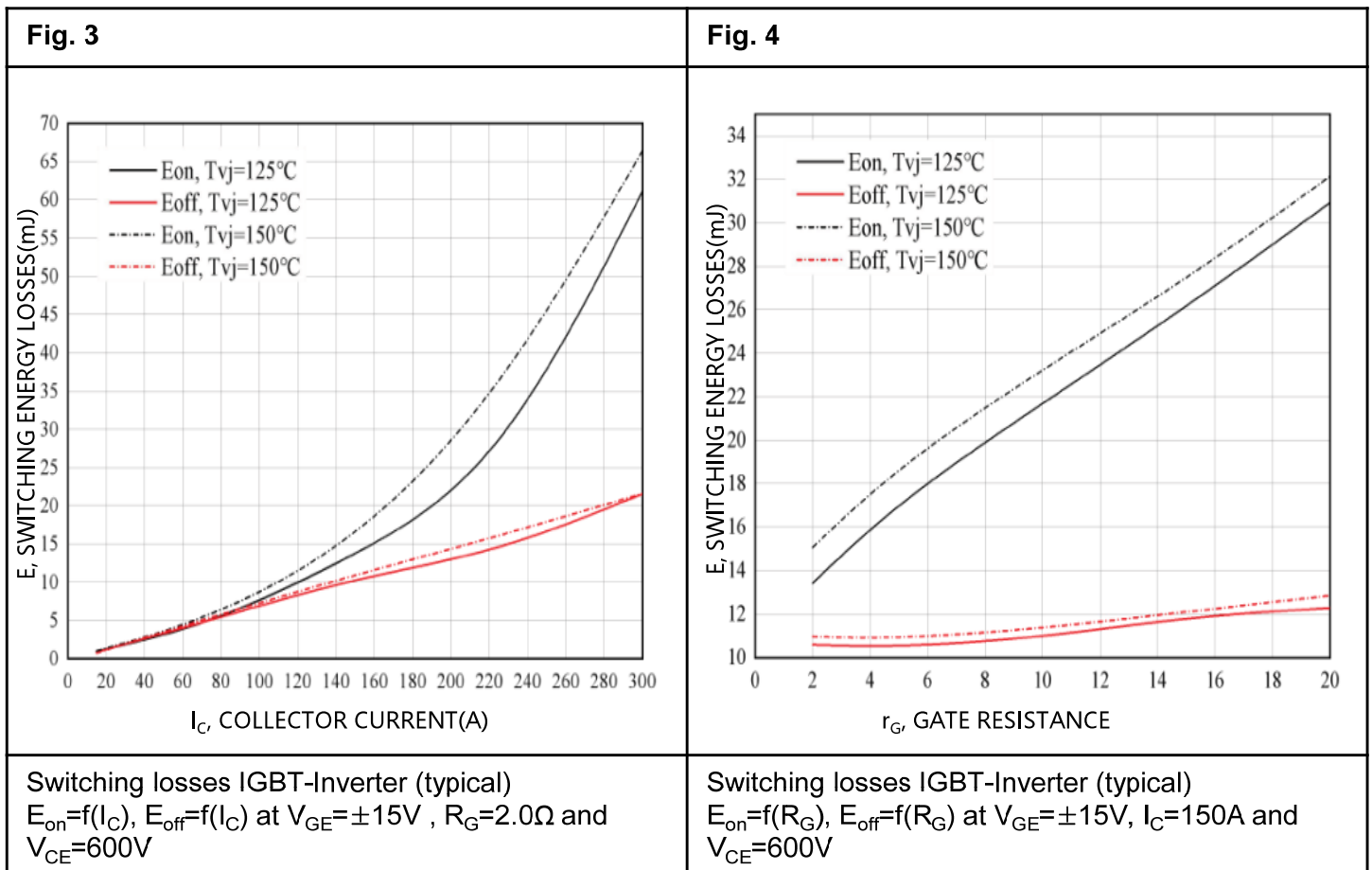
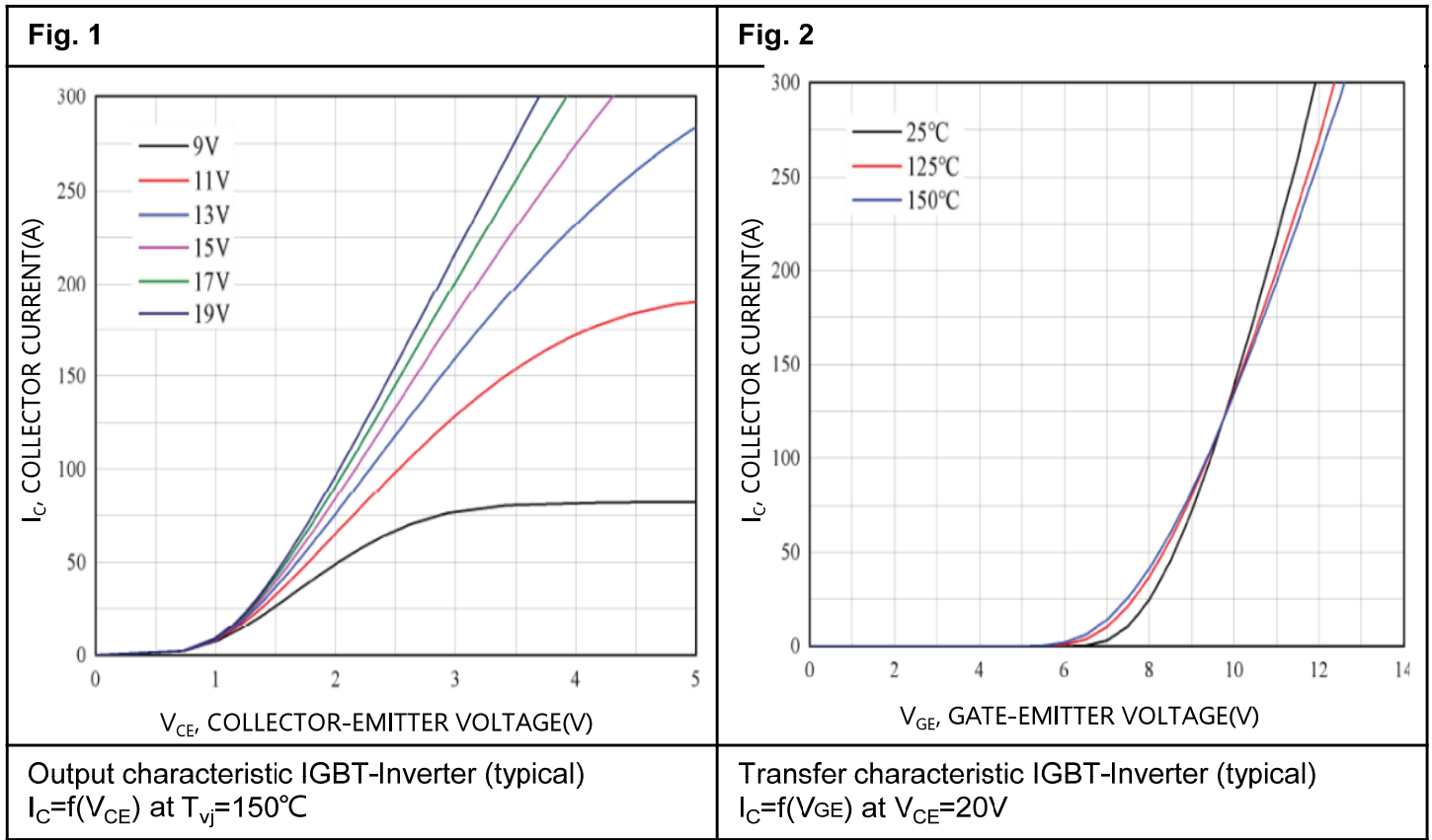
Symbol	Description	Conditions	Values			Unit
			Min.	Typ.	Max.	
V _F	Forward Voltage	I _F =150A, V _{GE} =0V, T _{vj} =25°C	---	2.5	---	V
		I _F =150A, V _{GE} =0V, T _{vj} =125°C	---	1.9	---	V
I _{RM}	Peak Reverse Recovery Current	I _F =150A, V _R =600V, V _{GE} =-15V T _{vj} =25°C	---	42	---	A
Q _r	Recovered Charge		---	3.1	---	uC
E _{rec}	Reverse Recovery Energy		---	1.1	---	mJ
T _{VJ OP}	Virtual Junction Temperature	Under Switching	-40	---	150	°C

Module

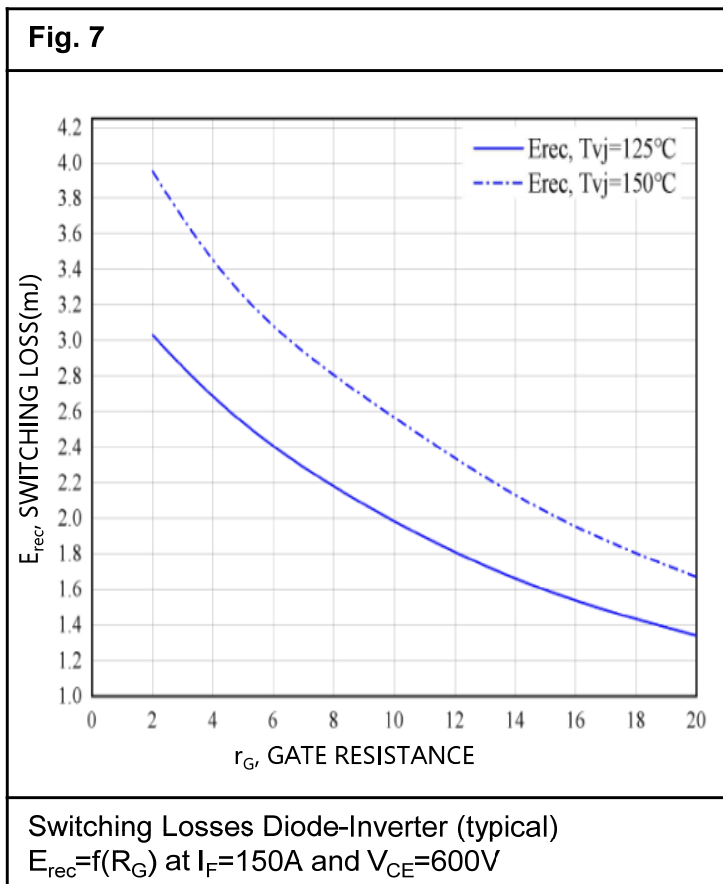
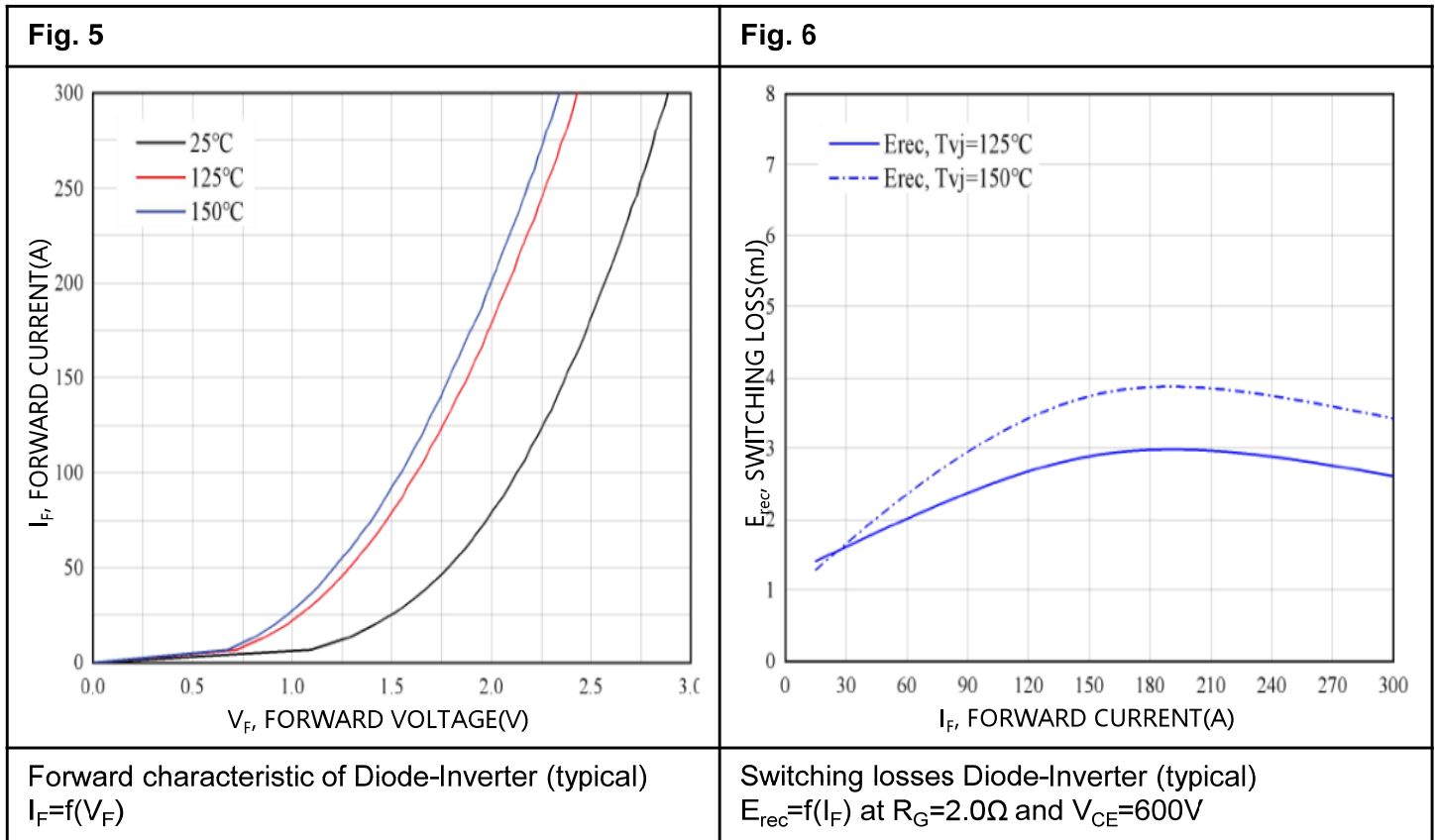
Symbol	Description	Conditions	Values	Unit
V _{ISOL}	Isolation Test Voltage	RMS, f=50Hz, t=1min	4.0	KV
	Material of Module Baseplate		Cu	
	Internal Isolation	Basic Insulation (Class 1, IEC 61140)	Al ₂ O ₃	
	Creepage Distance	Terminal to Heatsink	29.3	mm
		Terminal to Terminal	22.8	
	Clearance	Terminal to Heatsink	24.0	mm
		Terminal to Terminal	11.0	
CTI	Comparative Tracking Index		> 400	

Symbol	Description	Conditions	Values			Unit
			Min.	Typ.	Max.	
R _{thCH}	Thermal Resistance, Case to Heatsink	Per Module λ _{Paste} =1W/(m·k) / λ _{Grease} =1W/(m·k)	---	0.01	---	K/W
L _{sCE}	Stray Inductance Module		---	20	---	nH
R _{CC'+EE'}	Module lead resistance, terminals-chip	T _C =25°C, Per Switch	---	0.69	---	mΩ
T _{stg}	Storage Temperature		-40	---	125	°C
M	Mounting Torque for Modul Mounting		3.0	---	6.0	Nm
G	Weight		---	344	---	g

Typical Characteristics

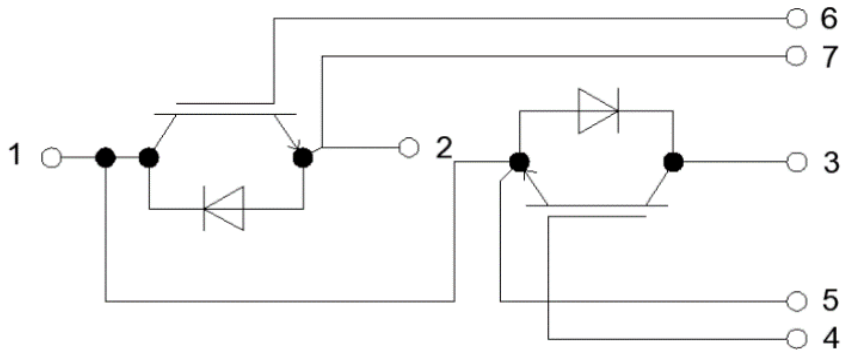


Typical Characteristics



P/N: YZPST-P150HFN120AT1R6

Circuit Diagram



Package Outlines (mm)

