

Discrete with trench / field stop IGBT, ultra fast recovery diode.

Features

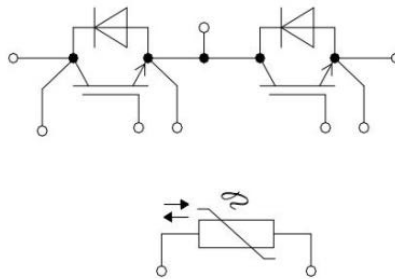
- Trench+ Field Stop Technology
- Low V_{CEsat}

Applications

- Motor Drives
- High Power Converters
- UPS Systems



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		± 30	V
I_C	Continuous DC Collector Current	$T_C=100^{\circ}C$	600	A
I_{CRM}	Repetitive Peak Collector Current	$t_p=1ms$	1200	A
P_{tot}	Total Power Dissipation	$T_C=25^{\circ}C, T_{vjmax}=175^{\circ}C$	4769	W

Characteristic Values

Symbol	Description	Conditions	Values			Unit
			Min.	Typ.	Max.	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$V_{GE}=15V, I_C=600A, T_{vj}=25^{\circ}C$	---	1.82	--	V
		$V_{GE}=15V, I_C=600A, T_{vj}=125^{\circ}C$	---	2.16	--	V
$V_{GE(th)}$	Gate Threshold Voltage	$V_{GE}=V_{CE}, I_C=22.2mA$	5.0	5.8	6.8	V
I_{CES}	Collector-Emitter Cut-Off Current	$V_{CE}=1200V, V_{GE}=0V$	---	---	1	mA
I_{GES}	Gate-Emitter Leakage Current	$V_{GE}=30V, V_{CE}=0V$	---	---	750	nA
R_{Gint}	Internal Gate Resistor	$T_{vj}=25^{\circ}C$	---	1.1	---	Ω
C_{ies}	Input Capacitance	$V_{CE}=25V, V_{GE}=0V, f=1MHz$	---	52	---	nF
C_{res}	Reverse Transfer Capacitance		---	1.8	---	nF
$t_{d(on)}$	Turn-on Delay Time	$V_{CC}=600V$ $V_{GE}=\pm 15V$ $I_C=600A$ $R_G=1.5\Omega$ Inductive Load $T_{vj}=25^{\circ}C$	---	245	---	ns
t_r	Turn-on Rise Time		---	692	---	ns
$t_{d(off)}$	Turn-off Delay Time		---	114	---	ns
t_f	Turn-off Fall Time		---	103	---	ns
E_{on}	Turn-on Switching Loss		---	50	---	mJ
E_{off}	Turn-off Switching Loss		---	68	---	mJ
I_{SC}	Short Circuit Data	$V_{GE}\leq 15V, V_{CC}=800V,$ $t_p\leq 10\mu s, V_{CEmax}=V_{CES}-L_{sCE}\cdot di/dt$ $T_{vj}=150^{\circ}C$	---	2480	---	A
R_{thJC}	Thermal Resistance, Junction to Case	Per IGBT	---	0.315	---	K/W
T_{VJOP}	Virtual Junction Temperature	Under Switching	-40	---	150	$^{\circ}C$

**Diode - Inverter
Maximum Rated Values**

Symbol	Description	Conditions	Values	Unit
V_{RRM}	Repetitive Peak Reverse Voltage	$T_{vj}=25^{\circ}C$	1200	V
I_F	Continuous DC Forward Current		600	A
I_{FRM}	Repetitive Peak Collector Current	$t_p=1ms$	1200	A

Characteristic Values

Symbol	Description	Conditions	Values			Unit
			Min.	Typ.	Max.	
V _F	Forward Voltage	I _F =600A, V _{GE} =0V, T _{vj} =25°C	---	2.00	---	V
		I _F =600A, V _{GE} =0V, T _{vj} =125°C	---	2.21	---	V
I _{RM}	Peak Reverse Recovery Current	I _F =450A, V _R =600V, V _{GE} =-15V T _{vj} =25°C	---	264	---	A
Q _r	Recovered Charge		---	40.6	---	uC
E _{rec}	Reverse Recovery Energy		---	14	---	mJ
T _{vj OP}	Virtual Junction Temperature	Under Switching	-40	---	150	°C

NTC-Thermistor Characteristic Values

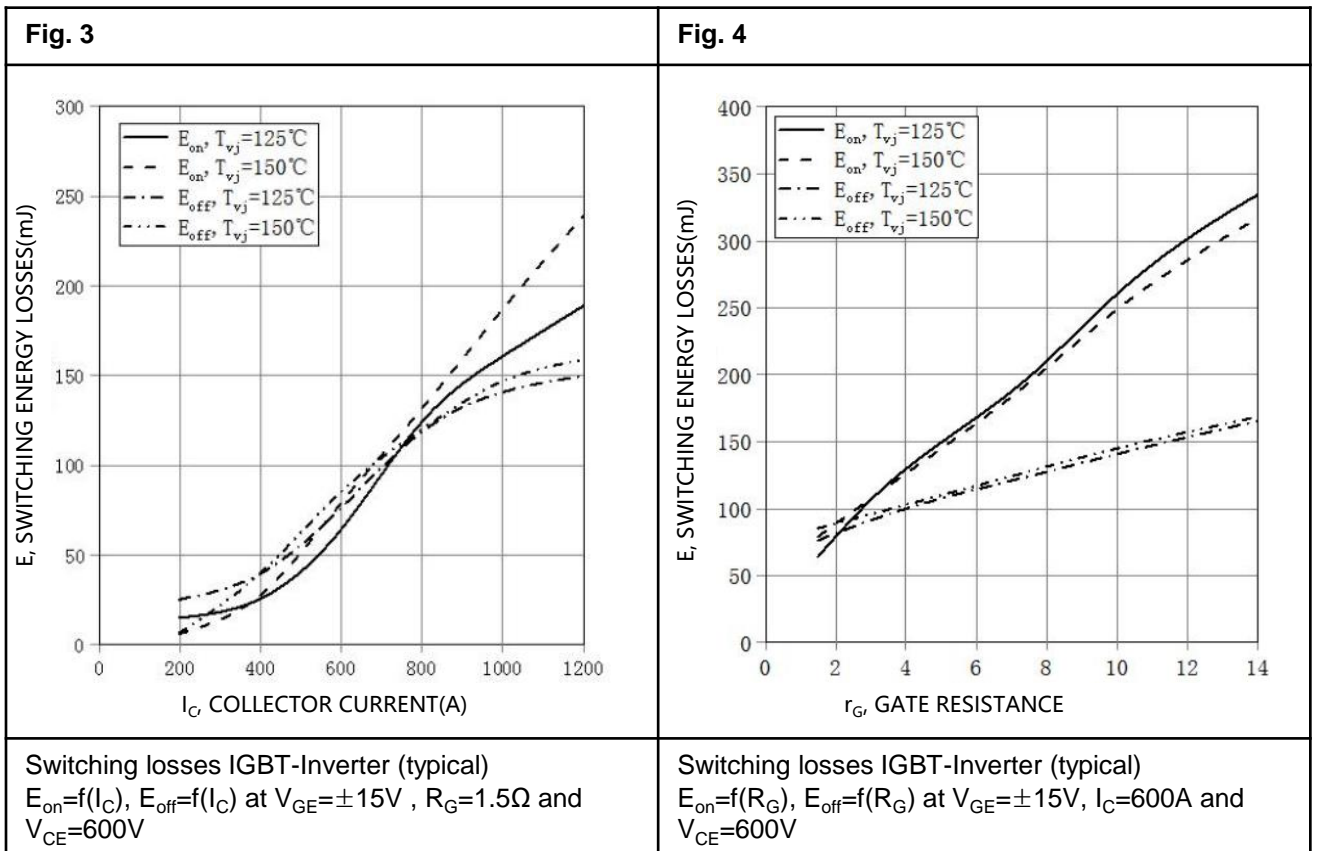
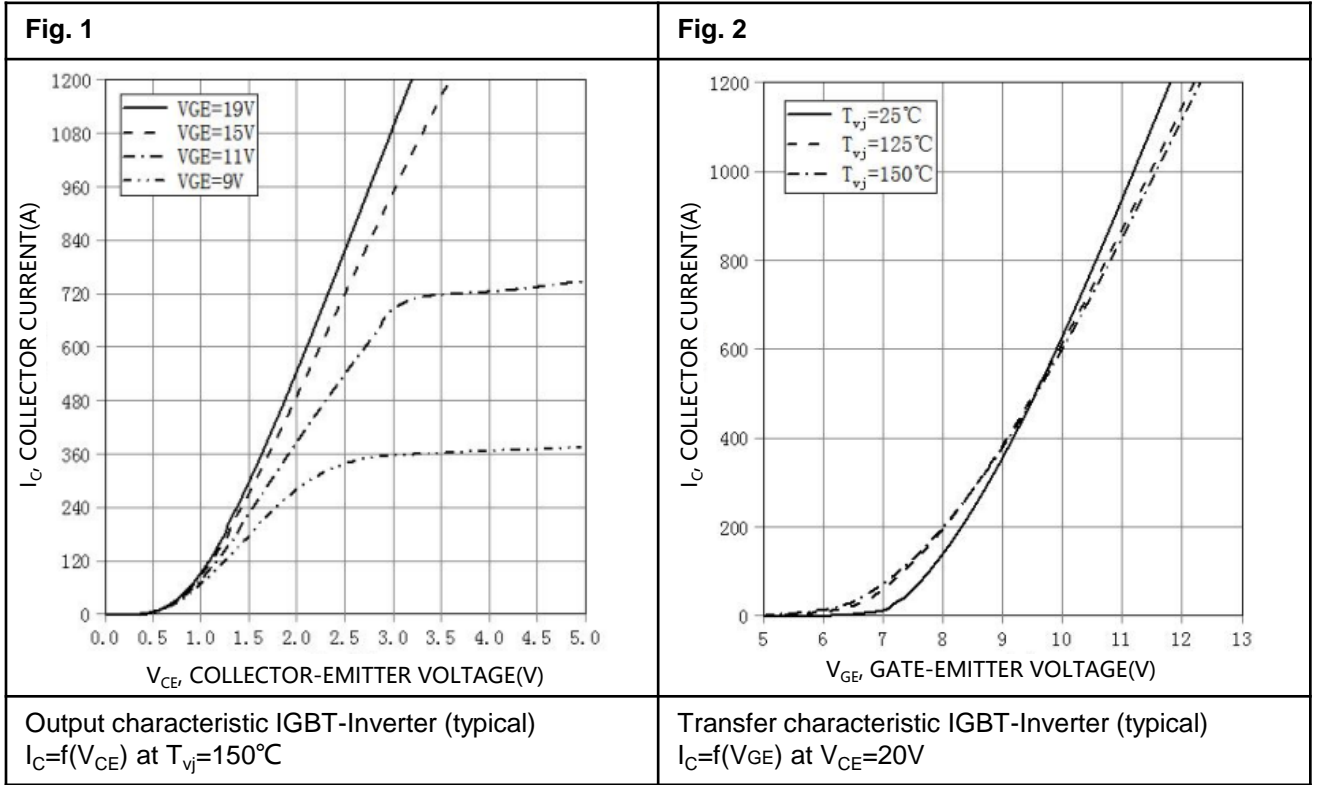
Symbol	Description	Conditions	Values			Unit
			Min.	Typ.	Max.	
R ₂₅	Rated Resistance	T _C =25°C	---	5	---	KΩ
ΔR/R	Power Dissipation	T _C =100°C, R100=465Ω	-7.3	---	7.3	mW
B _{25/50}	B Value	B=[(Ta*Tb)/(Tb-Ta)]*ln(R _a /R _b) T _b =50°C±0.01°C	---	3380	---	K

Module

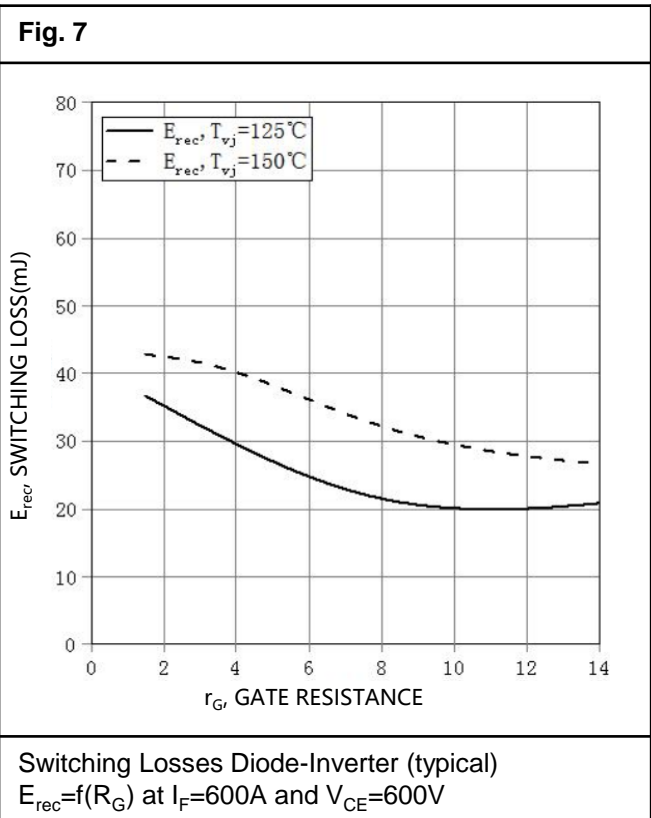
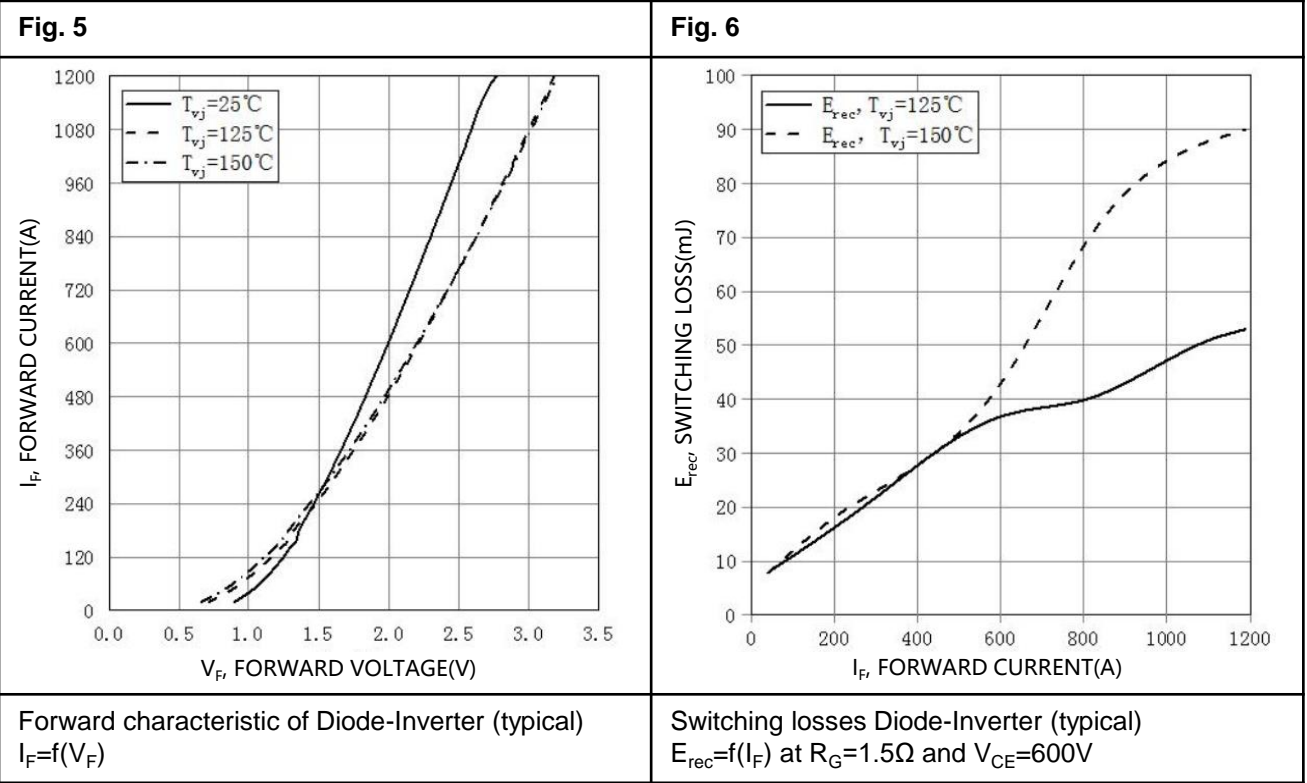
Symbol	Description	Conditions	Values	Unit
V _{ISOL}	Isolation Test Voltage	RMS, f=50Hz, t=1min	4.0	KV
	Material of Module Baseplate		Cu	
	Internal Isolation	Basic Insulation (Class 1, IEC 61140)	Al ₂ O ₃	
	Creepage Distance	Terminal to Terminal	12.8	mm
	Clearance	Terminal to Terminal	10.1	mm
CTI	Comparative Tracking Index		> 200	

Symbol	Description	Conditions	Values			Unit
			Min.	Typ.	Max.	
L _{sCE}	Stray Inductance Module		---	19	---	nH
R _{CC+EE'}	Module Lead Resistance, Terminals-chip	T _C =25°C, Per Switch	---	1.05	---	mΩ
T _{stg}	Storage Temperature		-40	---	125	°C
M	Mounting Torque for Modul Mounting		3.0	---	6.0	Nm
G	Weight		---	348	---	g

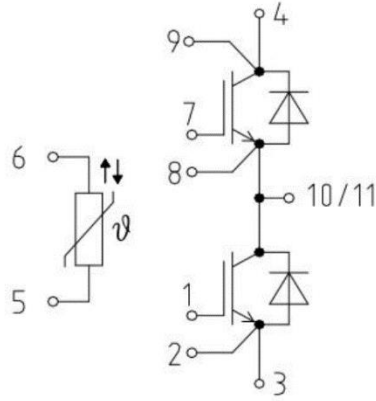
Typical Characteristics



Typical Characteristics



Circuit Diagram



Package Outlines (mm)

