

Features

- Trench+ Field Stop Technology
- High short circuit capability(10μs)
- Including fast & soft recovery anti-parallel FWD

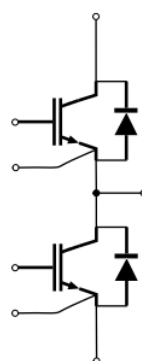


Product Summary		
V _{CES} (V)	V _{CESAT} (V)Typ	I _C (A)
1700	2.0 @ 15V,300A	300

Block Diagram

Application

- Inverter for motor drive
- UPS
- AC and DC servo drive amplifier
- Soft switching welding machine



IGBT, Inverter

Table1 Absolute Maximum Ratings (T_c=25°C, unless otherwise specified)

Parameters	Symbol	Value	Unit
Collector-Emmitter Voltage	V _{CES}	1700	V
Gate-Emmitter Voltage	V _{GES}	±20	V
Collector DC Current-continuous T _c =80°C, T _j max=150°C	I _C	300	A
Repetitive peak collector current tp=1ms	I _{CRM}	600	A

Table 2. Electrical Chatacteristics (T_j=25°C, unless otherwise specified)

Parameters	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Emmitter saturation Voltage	V _{CESAT}	V _{GE} =15V, I _C =300A, T _j =25°C		2.0	2.3	V
		V _{GE} =15V, I _C =300A, T _j =125°C		2.35		
		V _{GE} =15V, I _C =300A, T _j =150°C		2.45		
Gate Threshold Voltage	V _{GE(TH)}	V _{CE} =V _{GE} , I _C =6.0mA		6.0	6.4	V
Internal gate resistor	R _{gint}	T _j =25°C		2.5		Ω
Gate charge	Q _G	V _{GE} = -15V~ +15V, V _{CE} =900V		3.05		μC
Zero Gate Voltage Collector Current	I _{CES}	V _{CE} =1700V, V _{GE} =0V			1	mA
Gate-body Leakage Current	I _{GES}	V _{CE} =0V, V _{GE} =20V			100	nA

Input Capacitance	C_{ies}	$V_{CE}=25V, V_{GE}=0V, f=1MHz$		24.5		nF
Reverse Transfer Capacitance	C_{res}			0.81		nF
Turn-On Delay Time	$t_{d(on)}$	$V_{CE}=900V, I_C=300A,$ $V_{GE}=\pm 15V, R_G=2.4\Omega,$ (inductive load), $T_J=25^\circ C$		300		ns
Turn-On Rise Time	t_r			50		ns
Turn-Off Delay Time	$t_{d(off)}$			700		ns
Turn-Off Fall Time	t_f			90		ns
Turn-On energy	E_{on}			70		mJ
Turn-Off energy	E_{off}			58		mJ
Turn-On Delay Time	$t_{d(on)}$	$V_{CE}=900V, I_C=300A,$ $V_{GE}=\pm 15V, R_G=2.4\Omega,$ (inductive load), $T_J=125^\circ C$		320		ns
Turn-On Rise Time	t_r			55		ns
Turn-Off Delay Time	$t_{d(off)}$			740		ns
Turn-Off Fall Time	t_f			150		ns
Turn-On energy	E_{on}			90		mJ
Turn-Off energy	E_{off}			92		mJ
Turn-On Delay Time	$t_{d(on)}$	$V_{CE}=900V, I_C=300A,$ $V_{GE}=\pm 15V, R_G=2.4\Omega,$ (inductive load), $T_J=150^\circ C$		380		ns
Turn-On Rise Time	t_r			55		ns
Turn-Off Delay Time	$t_{d(off)}$			780		ns
Turn-Off Fall Time	t_f			170		ns
Turn-On energy	E_{on}			98		mJ
Turn-Off energy	E_{off}			105		mJ
Temperature under switching conditions	T_{vjop}		-40		150	$^\circ C$
SC data	I_{sc}	$t_p \leq 10\mu s, V_{GE}=15V,$ $V_{CC}=1000V, V_{CEM} \leq 1700V,$ $T_J=25^\circ C$		1550		A
		$t_p \leq 10\mu s, V_{GE}=15V,$ $V_{CC}=1000V, V_{CEM} \leq 1700V,$ $T_J=150^\circ C$		1400		A

Diode, Inverter

Table1 Absolute Maximum Ratings ($T_c=25^\circ C$, unless otherwise specified)

Parameters	Symbol	Value	Unit
Repetitive peak reverse voltage	V_{RRM}	1700	V
Continuous DC forward current	I_F	300	A
Repetitive peak forward current $t_p=1ms$	I_{FRM}	600	A
I^2t -value $V_R=0V, t_p=10ms, T_J=125^\circ C$	I^2t	14500	A^2s

Table 2. Electrical Chatacteristics (T_j=25°C, unless otherwise specified)

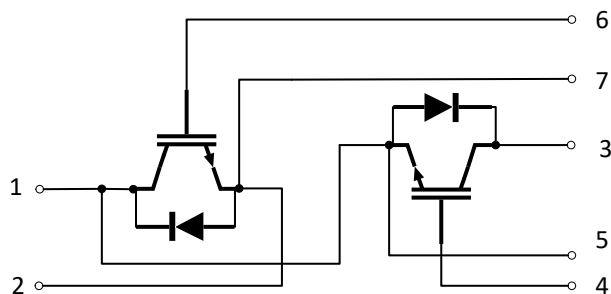
Parameters	Symbol	Test Conditions	Min	Typ	Max	Unit
Diode Forward Voltage	V _F	I _F =300A, T _j =25°C		1.80	2.20	V
		I _F =300A, T _j =125°C		1.90		
		I _F =300A, T _j =150°C		1.95		
Diode Peak Reverse Recovery Current	I _{rrm}	I _F =300A V _R =900V		270		A
Reverse Recovery Charge	Q _{rr}	-diF/dt =4800A/μs(T _j =150°C)		50		μC
Reverse recovery energy	E _{rec}	T _j =25°C		28		mJ
Diode Peak Reverse Recovery Current	I _{rrm}	I _F =300A V _R =900V		340		A
Reverse Recovery Charge	Q _{rr}	-diF/dt =4800A/μs(T _j =150°C)		105		μC
Reverse recovery energy	E _{rec}	T _j =125°C		58		mJ
Diode Peak Reverse Recovery Current	I _{rrm}	I _F =300A V _R =900V		360		A
Reverse Recovery Charge	Q _{rr}	-diF/dt =4281A/μs(T _j =150°C)		120		μC
Reverse recovery energy	E _{rec}	T _j =150°C		68		mJ
Temperature under switching conditions	T _{vjop}		-40		150	°C

Module

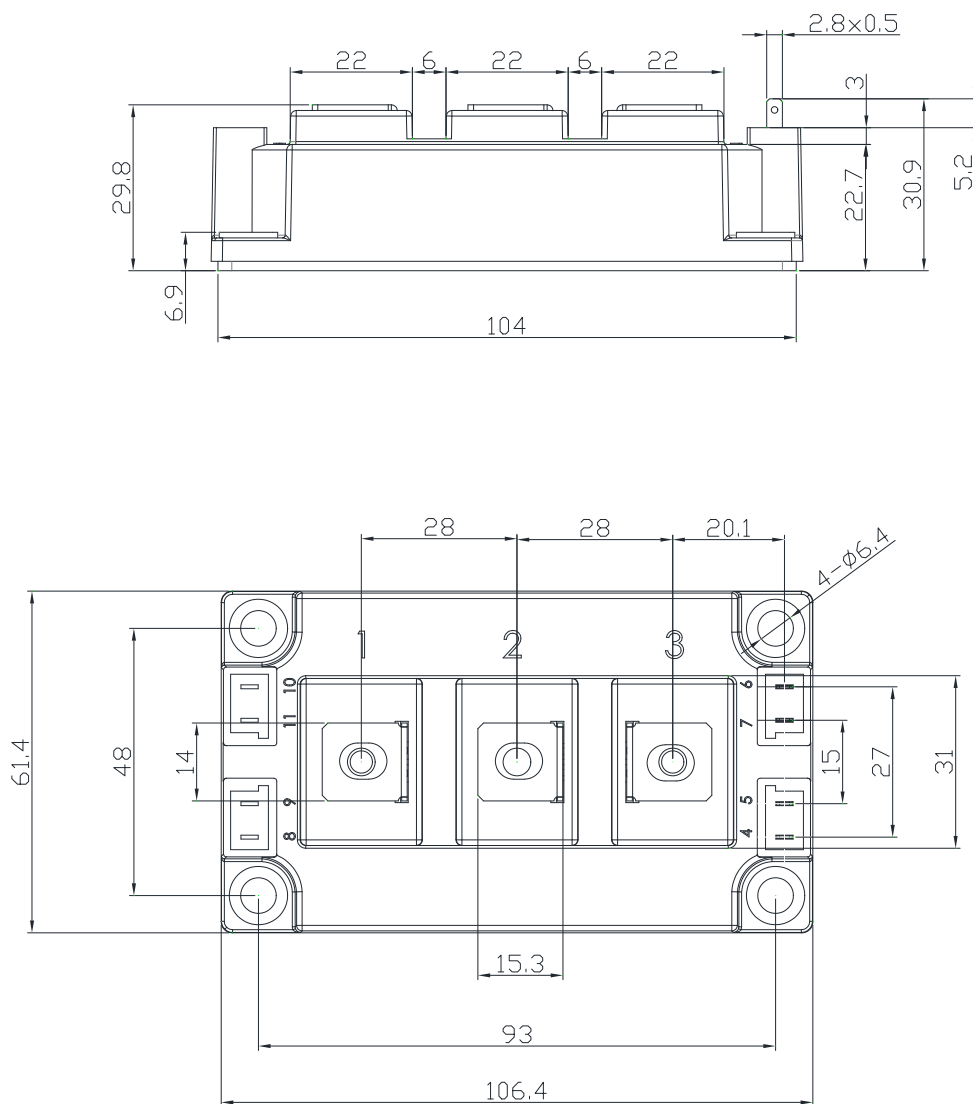
Table 1. Electrical Chatacteristics (T_j=25°C, unless otherwise specified)

Parameters	Symbol	Test Conditions	Min	Typ	Max	Unit
Isolation test voltage	V _{ISOL}	RMS, f=50Hz, t=60s	4000			V
Maximum junction temperature	T _{jmax}			150		°C
Storage temperature	T _{stg}		-40		125	°C
Operating junction temperature	T _{j op}		-40		150	°C
Stray inductance	L _{CE}			20		nH
Thermal resistance,case to heatsink	R _{thCH}			0.01		K/W
Mounting torque for modul mounting	M		3.0		6.0	Nm
Weight	W			340		g

Circuit diagram



Package outlines



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