



600V,30A,Trench FS III , IGBT

TO-247-3L (*Prefix :W)

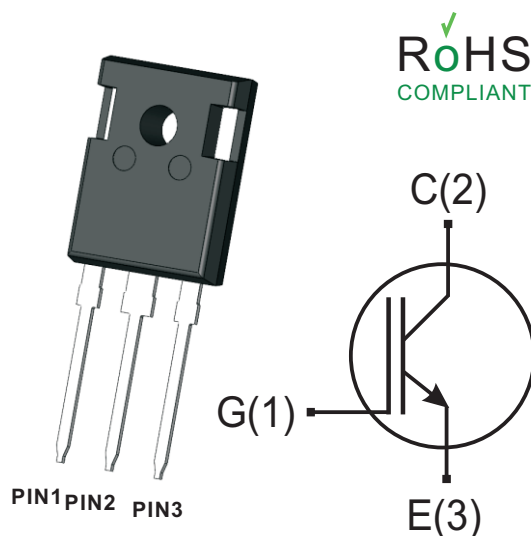
V _{CES}	650V
I _c (T _c 100°C)	30A
V _{CE(sat)} (typ)	1.65V

DESCRIPTION

- Positive temperature coefficient
- Low V_{CEsat}
- Low saturation voltage
- High switching frequency
- Easy paralleling
- Halogen Free, Rohs Compliant.

APPLICATIONS

- Motor drives
- Inverters
- Uninterruptible Power Supplies
- Converters



SYMBOL

ABSOLUTE MAXIMUM RATINGS (TA=25°C, unless otherwise specified)

PARAMETER	Symbols	RATINGS	Units
Collector-emitter voltage	V _{CES}	650	V
Gate-emitter voltage	V _{GES}	±20	V
Continuous Drain Current	I _c	T _c =25°C	60
		T _c =100°C	30
Short circuit data ⁽¹⁾ V _{GE} =15V, V _{CC} =480V, T _J =150°C	t _{sc}	10	us
Pulsed Drain Current	I _{CM}	90	A
Power Dissipation (T _c = 25°C)	P _D	230	W
Operating junction temperature	T _j	-55 ~ +150	°C
storage temperature	T _{stg}	-55 ~ +150	°C

Notes: 1. Depending on thermal properties of assembly.
Not subject to production test – verified by design/characterization

Thermal Resistance

Parameter	Symbols	Ratings	Units
Thermal resistance, junction – case.	R _{thJC}	0.54	°C/W
Thermal resistance, junction – ambient(min. footprint)	R _{thJA}	50	°C/W



ELECTRICAL CHARACTERISTICS (TA=25°C, unless otherwise specified)

PARAMETER	Symbols	TEST CONDITIONS	Min	Typ	Max	Units
OFF CHARACTERISTICS						
Collector-emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0V, I_{CE}=250\mu A$	650			V
Zero gate voltage collector current	I_{CES}	$V_{GE}=0V, V_{GE}=650V$			10	μA
Gate-emitter leakage current	I_{GES}	$V_{GE}=\pm 20V, V_{CE}=0V$			± 100	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=30A$		2.2	2.5	V
Gate-emitter threshold voltage	$V_{GE(TH)}$	$V_{GE}=V_{CE}, I_C=250\mu A$	4	5	7	V
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ies}	$V_{CE}=30V,$		1650		pF
Output Capacitance	C_{oes}	$V_{GE}=0V,$		130		pF
Reverse Transfer Capacitance	C_{res}	$f=1.0MHz$		35		pF
Dynamic						
Turn-On Energy (Body Diode)	E_{ON}	$V_{CE}=400V, I_C=30A$		1.85		mJ
Turn-Off Energy (Body Diode)	E_{OFF}	$V_{GE}=15V, R_g=10\Omega$		0.45		mJ
COSS Stored Energy	E_{ts}	$T_j=25^\circ C$		2.3		mJ
Turn-On Delay Time (Note 1)	$t_{D(ON)}$	$V_{CE}=400V, I_C=30A$		30		ns
Turn-On Rise Time	t_R	$V_{GE}=15V, R_g=10\Omega$		150		ns
Turn-Off Delay Time	$t_{D(OFF)}$	$T_j=25^\circ C$		67		ns
Turn-Off Fall Time	t_F			100		ns
Total Gate Charge (Note 1)	Q_G	$V_{CE}=50V, V_{GE}=15V,$		76		nC
Gate-Source Charge	Q_{GS}	$I_C=30A$		20		nC
Gate-Drain Charge	Q_{GD}	(NOTE1,2)		38		nC

Notes:

1. Pulse Test: Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$.
2. Essentially independent of operating temperature.



Typical Characteristics

Fig.1 Drain Current vs. Gate-Source Voltage

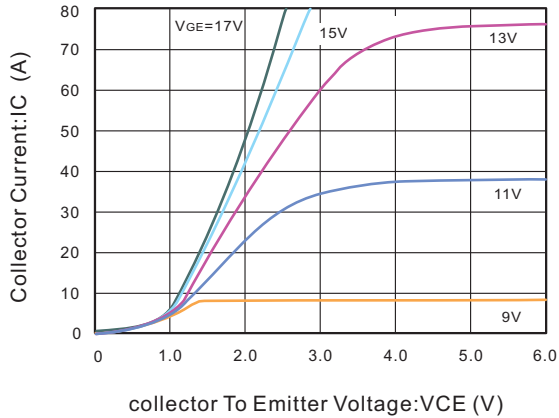


Fig.2 Capacitance Characteristics

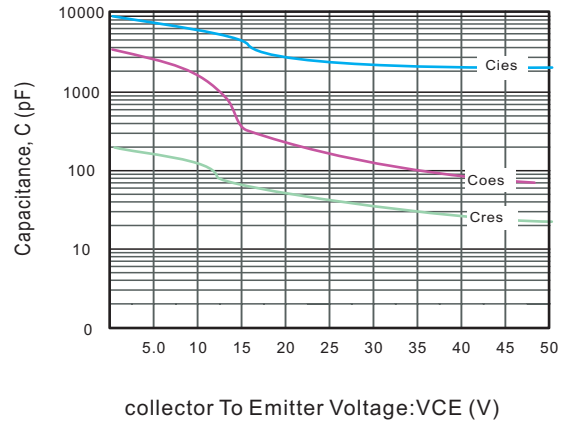


Fig.3 Power Dissipation

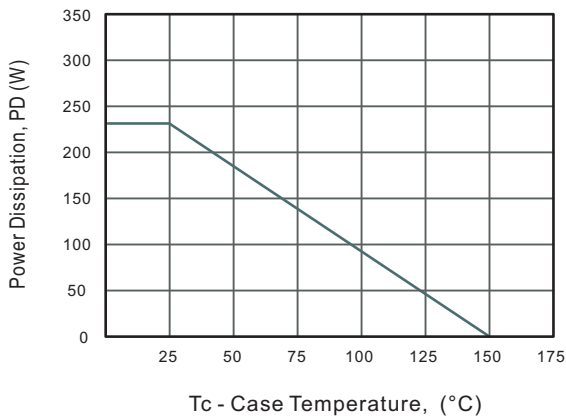


Fig.4 Collector current vs. case temperature

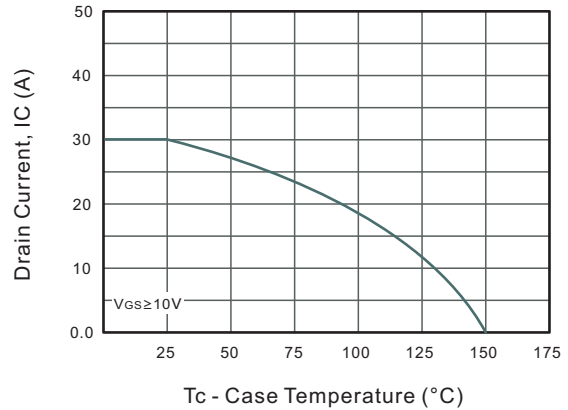


Fig.5 Max. Transient Thermal Impedance

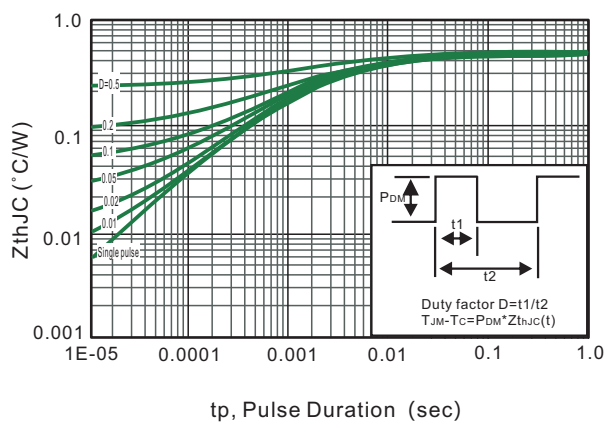
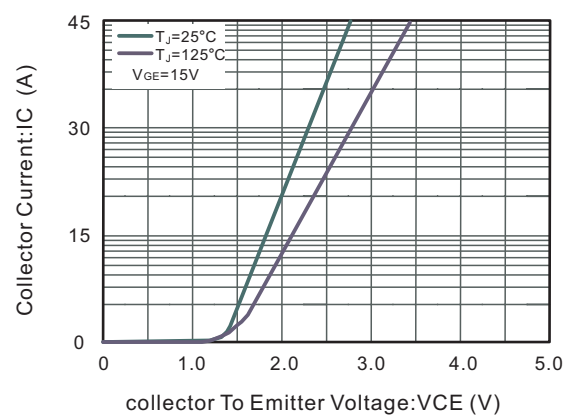


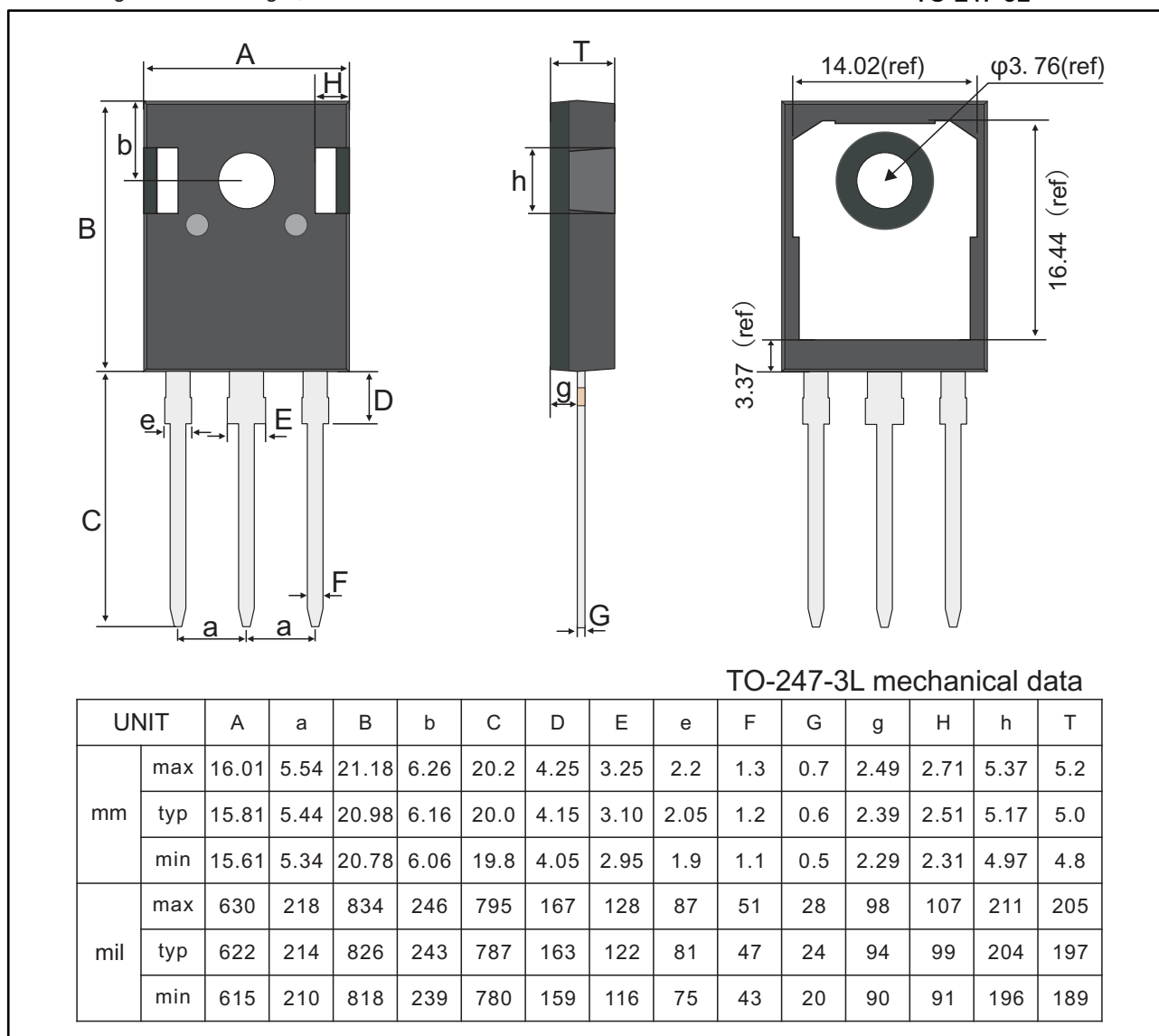
Fig.6 Typical Forward Characteristic(per leg)





Package Outline
Through Hole Package ; 3 leads

TO-247-3L



Marking

Type number	Marking code
GW30S365T	GW30S365T



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