

FGT303

March, 2006

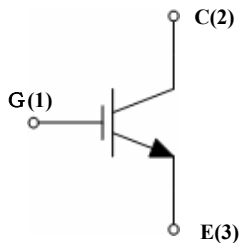
■Features

- Generation 3 IGBT (Trench Technology)
- Low $V_{CE(sat)}$: 1.3V typ
- Large Collector Current: $I_{cp}=160A$

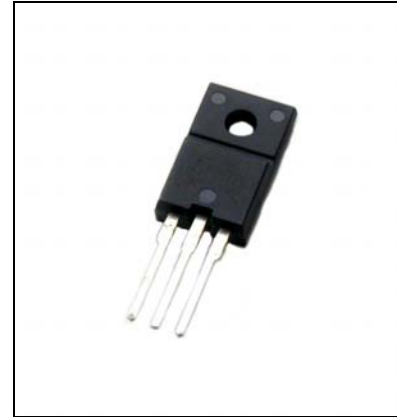
■Applications

- PDP driver

■Equivalent circuit



■Package—TO220F

Absolute maximum ratings

(Ta=25°C)

Parameter	Symbol	Ratings	Unit
Collector to Emitter Voltage	V_{CES}	300	V
Gate to Emitter Voltage	V_{GE}	± 20	V
Continuous Collector Current	$I_{C(DC)}$	30	A
Pulsed Collector Current	I_C (pulse)* ¹	160	A
Maximum Allowable Power Dissipation	PC	35 (Tc=25°C)	W
Operating Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55 to 150	°C

*1. $PW \leq 10\mu\text{sec}$, duty cycle $\leq 1\%$

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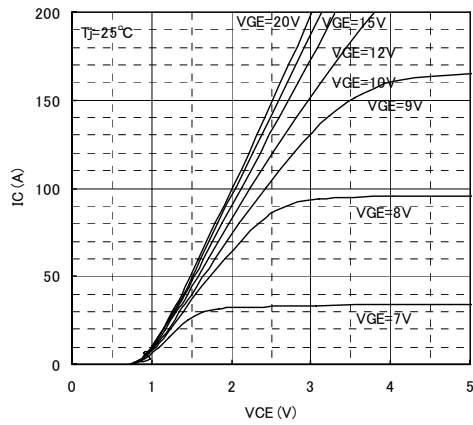
Electrical characteristics

(Ta=25°C)

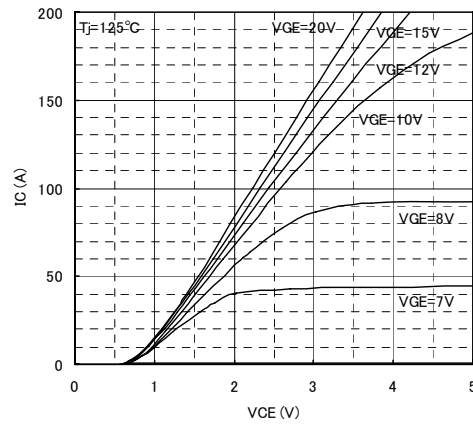
Parameter	Symbol	Test Conditions	Limits			Unit
			MIN	TYP	MAX	
Collector to Emitter Breakdown Voltage	V(BR)CES	IC= 100μA, VGE=0V	300			V
Gate to Emitter Leakage Current	IGES	VGE= ±20V			±100	nA
Collector to Emitter Leakage Current	ICES	VCE= 300V, VGE=0V			100	μA
Gate Threshold Voltage	VGE(th)	VCE= 10V, ID=1mA	3		6	V
Collector to Emitter Saturation Voltage	VCE(sat)	VGE=15V, IC= 30A		1.3	1.7	V
Collector to Emitter Saturation Voltage	VCE(sat)	VGE=15V, IC= 60A		1.65		V
Input Capacitance	Cies	VCE=20V f=1.0MHz VGE=0V		4600		pF
Output Capacitance	Coes			130		
Reverse Transfer Capacitance	Cres			95		
Turn-On Delay Time	td(on)	IC=60A VCE≈250V RL=4.17Ω VGE=15V RG=10Ω		30		ns
Rise Time	tr			90		
Turn-Off Delay Time	td(off)			110		
Fall Time	tf			175		

Typical performance characteristics

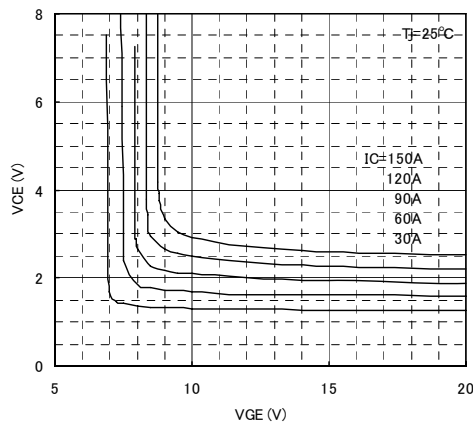
Typical Output Characteristics



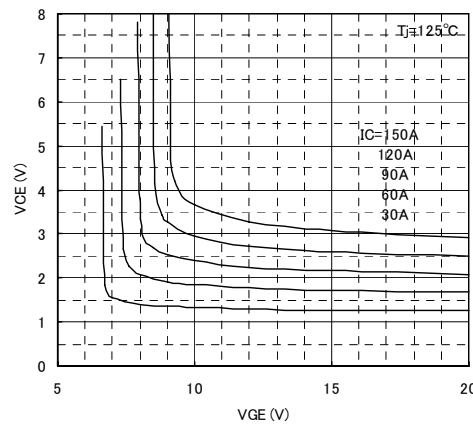
Typical Output Characteristics



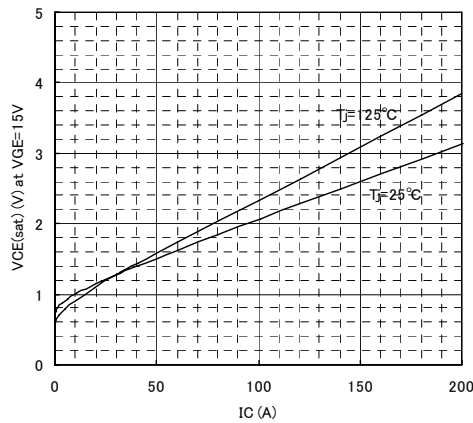
Typical VCE vs. VGE



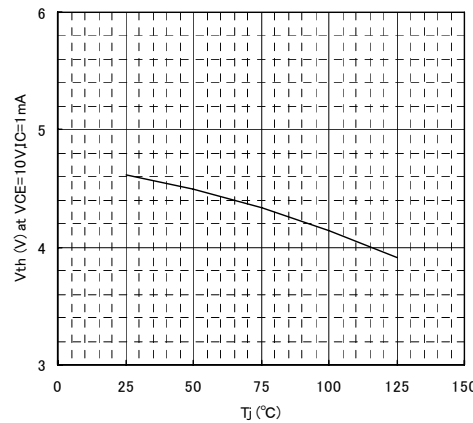
Typical VCE vs. VGE



Typical VCE vs. IC

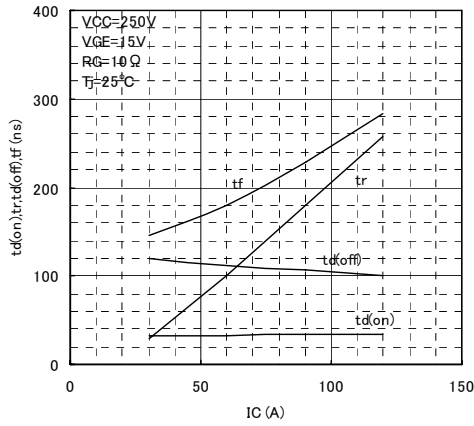


Typical Vth vs. Junction Temperature

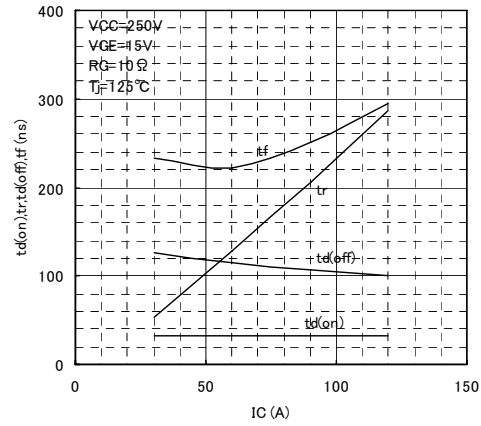


Typical performance characteristics

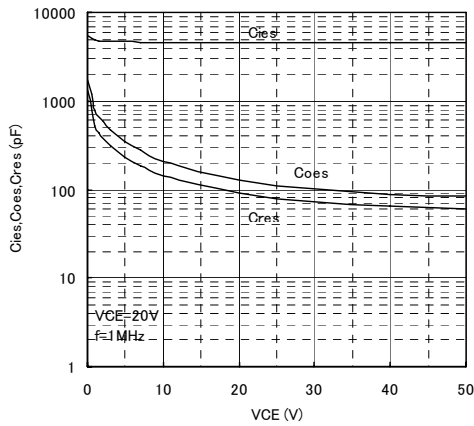
Typical Switching Times vs. IC



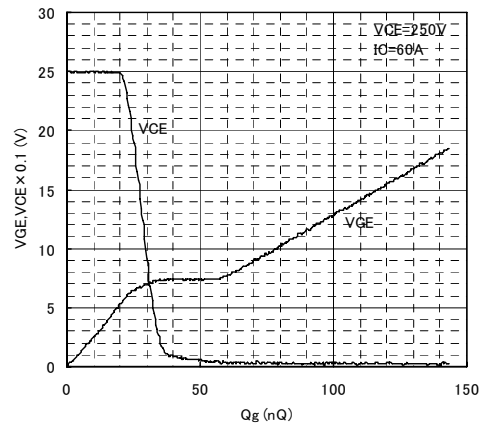
Typical Switching Time vs. IC



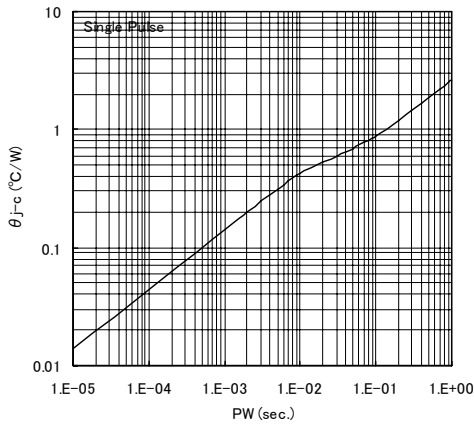
Typical Capacitance - VCE



Typical Gate Charge vs. VGE



Thermal Impedance vs. Pulse Width



Power Dissipation vs. Case Temperature

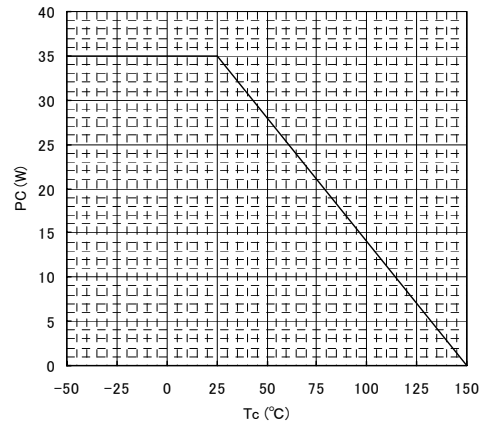
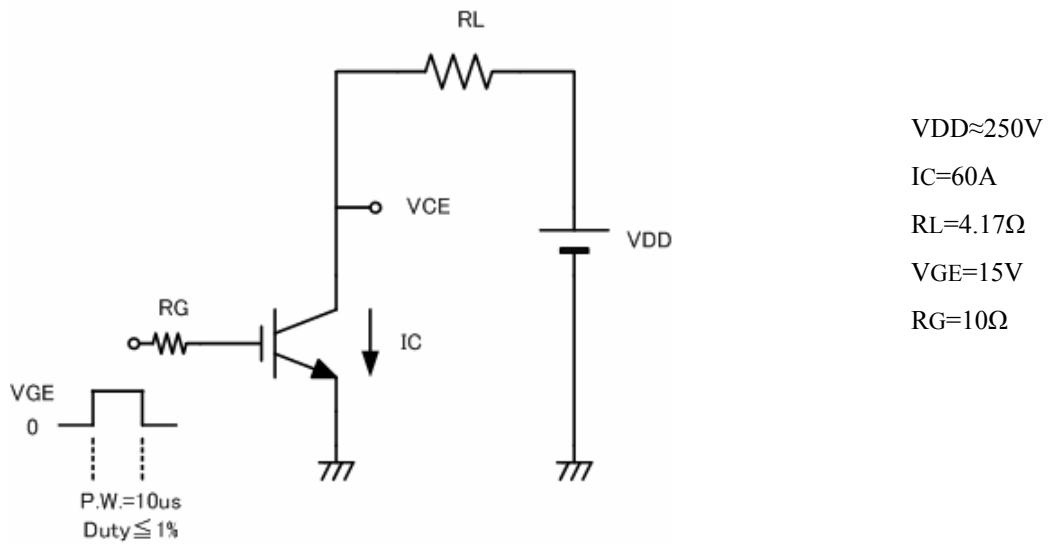
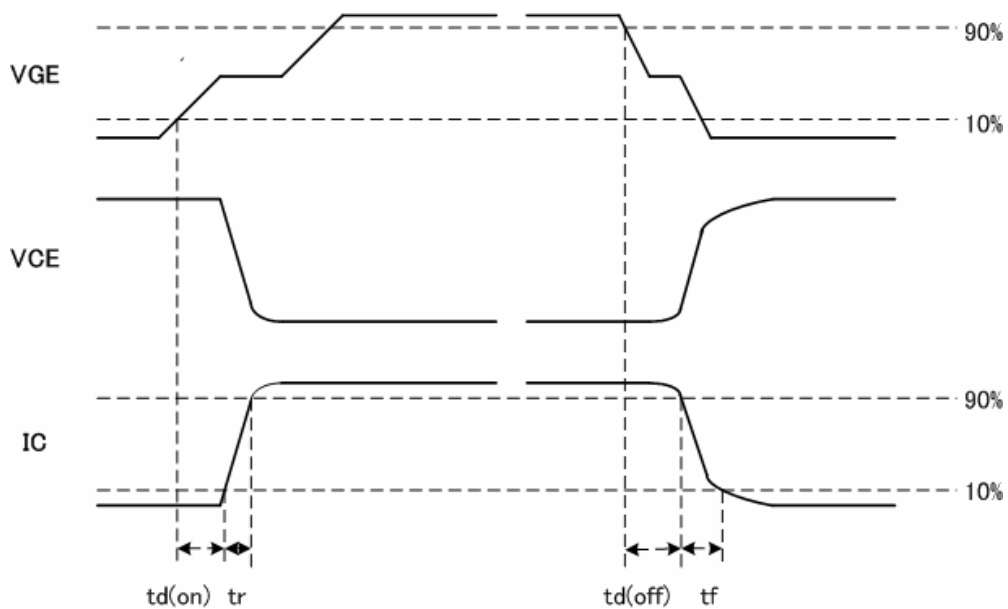


Fig.1 Switching Time Test Method



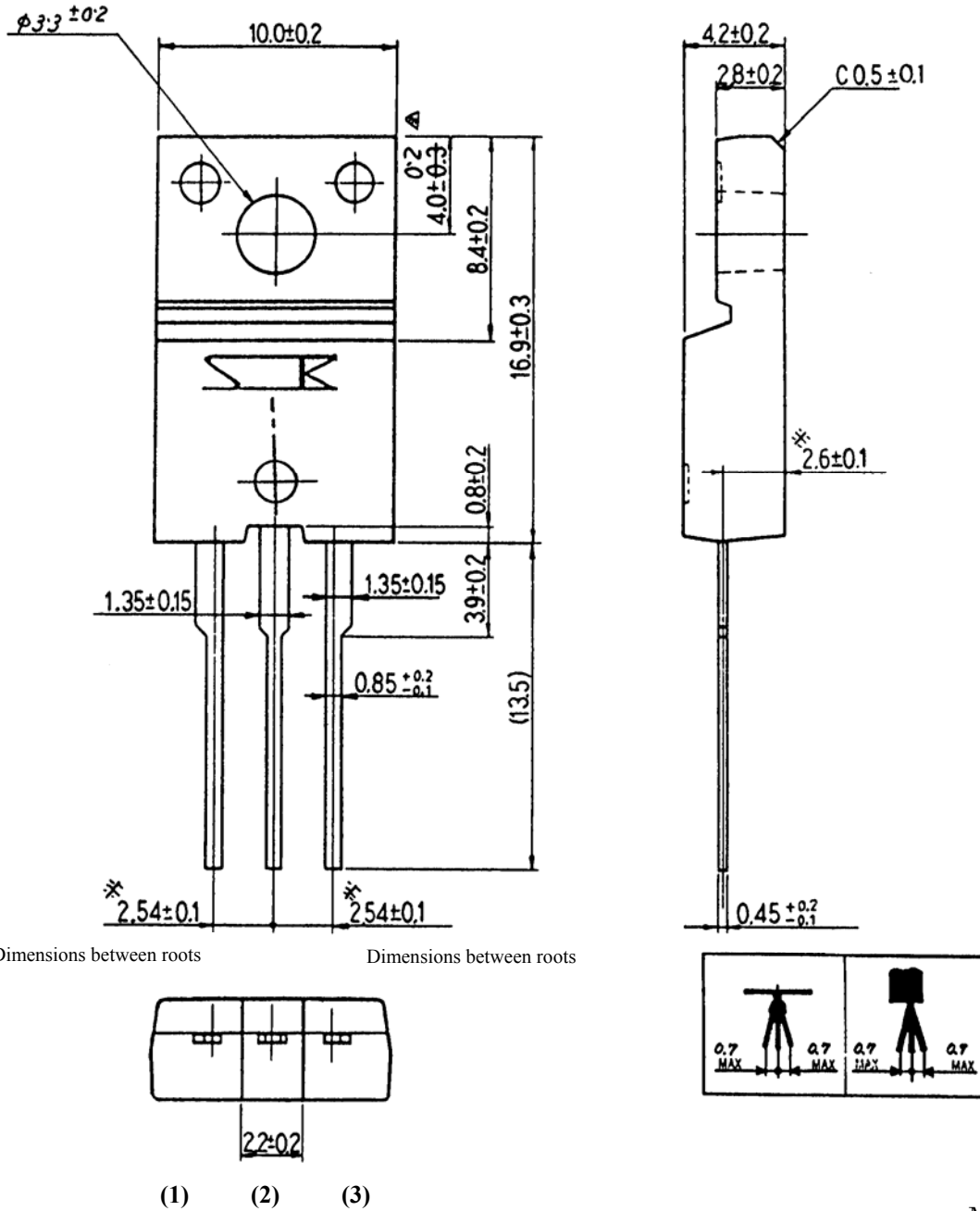
(a) Test Circuit



(b) Output waveforms

External dimensions

FM20 (TO220 Full Mold)



Mass: Approx.2g

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