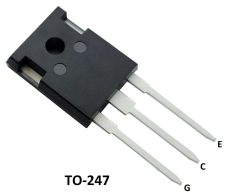
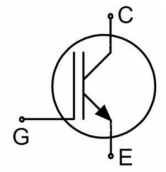
Features

- Low gate charge
- Trench-Stop Technology
- High speed switching
- Saturation voltage:VCE(sat),typ= 1.25V @ IC=80A and TC=25℃



Applications

- General purpose inverters
- Induction heating(IH)
- Welding Converters
- UPS



Absolute Ratings（Tc=25℃）

Parameter	Symbol	MSG80D60FLC	Unit
Collector-Emmiter Voltage	Vces	600	V
Collector Current-continuous	Ic Tc=25℃	80	A
	Tc=100℃	40	
Collector Current-pulse(note 1)	I_{CM}	300	A
Continuous Gate-Emmiter Voltage	V_{GE}	±20	V
Transient Gate-emitter voltage	V_{GE}	±30	V
Power Dissipation	P_D T_C=25℃	260	W
Operating Temperature Range	T_J	-55~+150	℃
Storage Temperature Range	T_{STG}	-55~150	℃
Maximum Lead Temperature for Soldering Purposes	T_L	300	℃

Thermal Characteristic

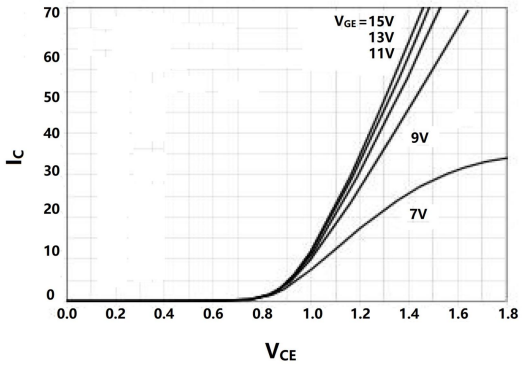
Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Off-Characteristics						
Collector-Emmiter Voltage	BV_{CES}	I_C=250μA,V_{GE}=0V	600	-	-	V
Zero Gate Voltage Collector Current	I_{CES}	V_{CE}=V_{CES},			25	μA
		V_{GE}=0V，T_J=125℃			250	
Gate-body leakage current	I_{GES}	V_{CE}=0V,V_{GE}=±20V	-	-	±100	nA

Transconductance	gfs	V_{CE}=10V,I_C=50A	30	48	-	S
On-Characteristics						
Gate-Emmiter Threshold Voltage	$V_{GE(th)}$	VCE=VGE, Ic=250uA	3.0	-	5.0	V
Collector-Emmiter saturation Voltage	V_{CESAT}	V_{GE}=15V,I_C=80A （1）		1.25	1.35	V
Dynamic Characteristics						
Input capacitance	Cies	VCE=25V, VGE=0V, f=1.0MHZ	-	3190	-	pF
Output capacitance	Coes		-	175	-	pF
Reverse transfer capacitance	Cres		-	43	-	pF
Switching Characteristics						
Turn-On delay time	t_d(on)	V_{CE}=480V,Ic=60A, R_G=5Ω, V_{GE}=15.0V TJ=25℃ Inductive Load	-	25	-	ns
Turn-On rise time	t_r		-	30	-	ns
Turn-off delay time	t_d(off)		-	334	-	ns
Turn-off Fall time	t_f		-	224	-	ns
Turn-on energy	E_{on}		-	0.95	-	mJ
Turn-off energy	E_{off}		-	2.90	-	mJ
Total Gate Charge	Qg	V_{CE}=0.5*V_{CES}, Ic=50A,VGE=15V (note3,4)	-	110	-	nC
Gate to emitter charge	Qge			21		nC
Gate to collector charge	Qgc			42		nC

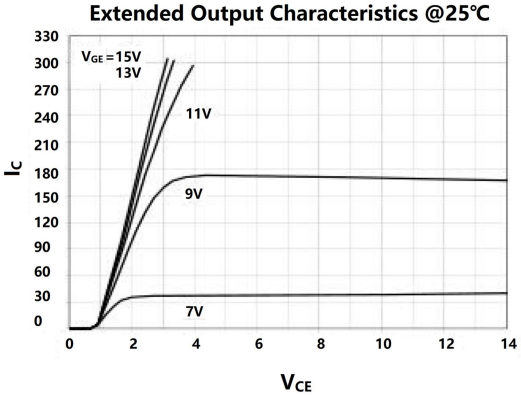
Parameter	Symbol	Max	Unit
IGBT Thermal Resistance,Junction to Case	$R_{th(j-c)}$	0.48	K/W
Thermal Resistance,Junction to Ambitent	$R_{th(j-A)}$	40	K/W

Electrical Characteristics(curves)

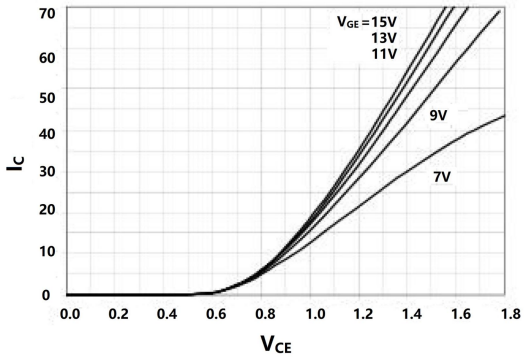
Output Characteristics @25℃



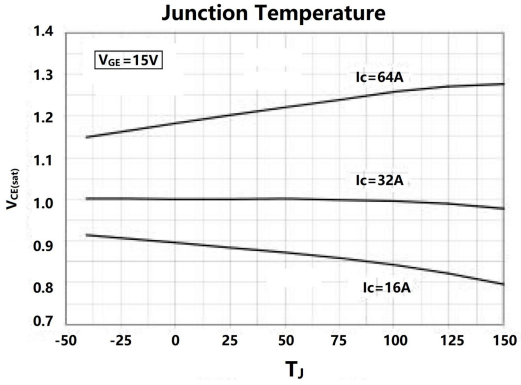
Extended Output Characteristics @25℃



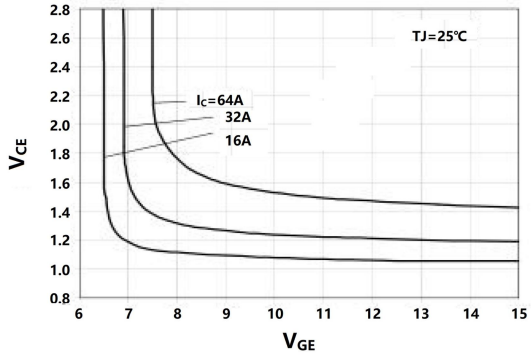
Output Characteristics @125℃



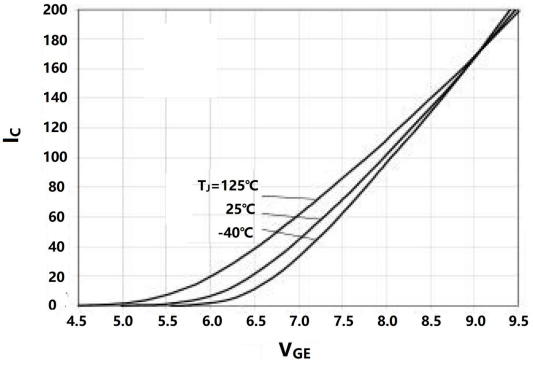
Dependence of VCE(sat) on Junction Temperature



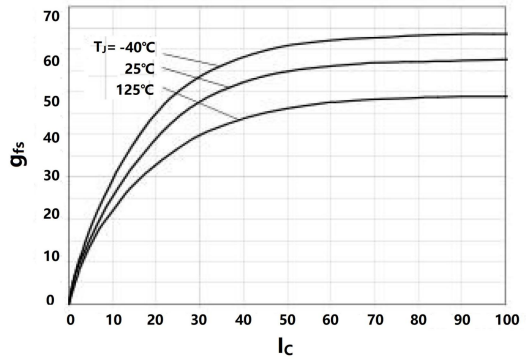
Collector to Emitter Voltage vs. Gate to Emitter Voltage



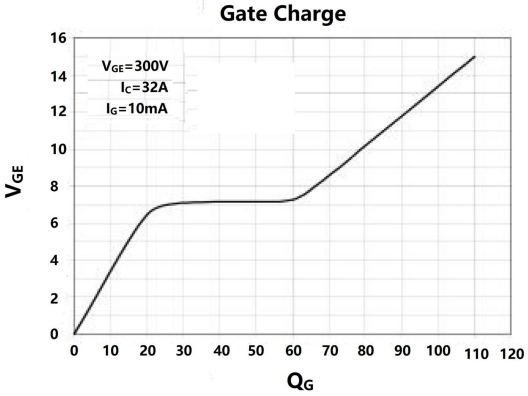
Input Admittance



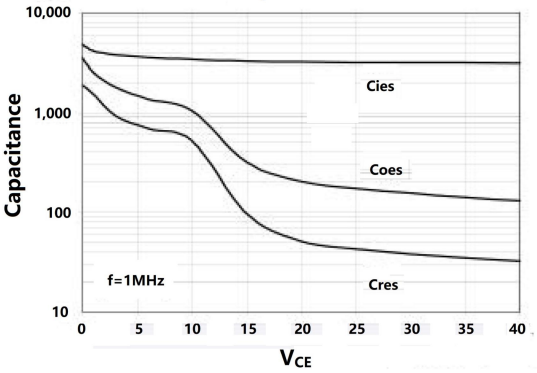
Transconductance



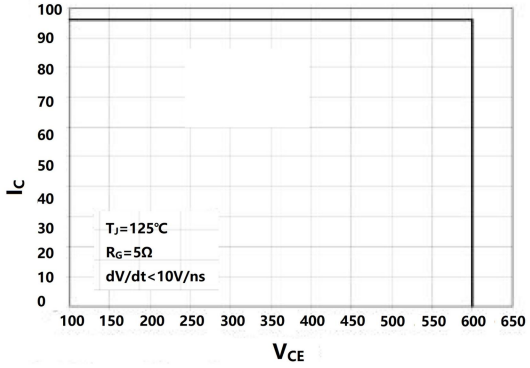
Gate Charge



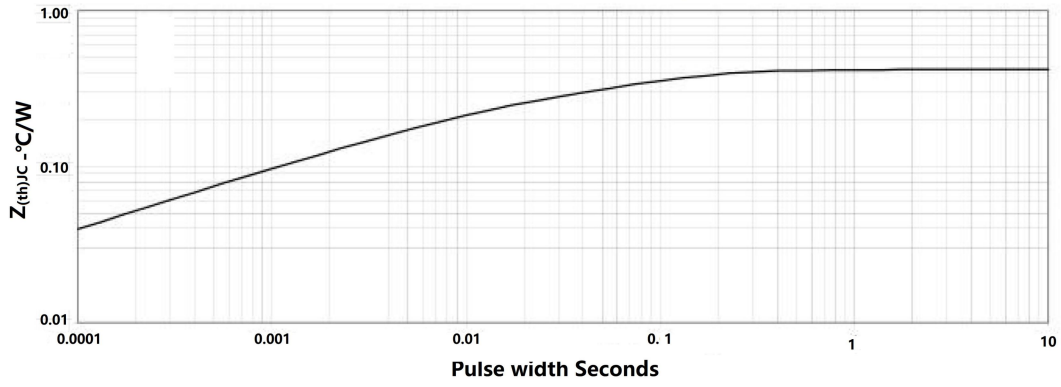
Capacitance



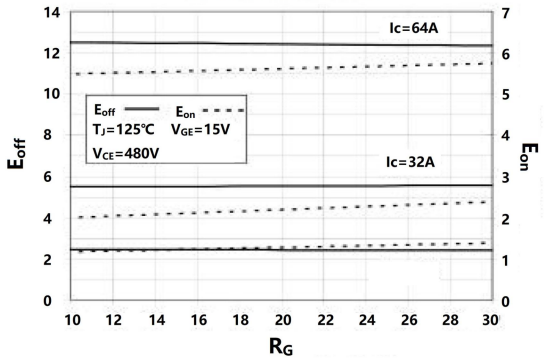
Reverse Bias Safe Operating Area



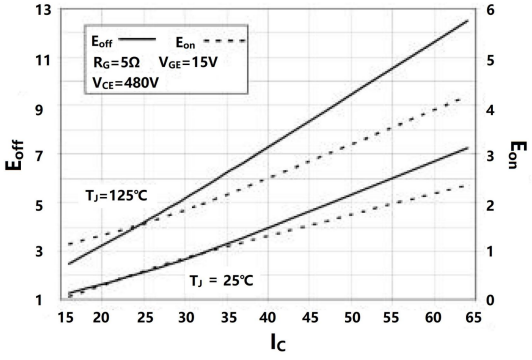
Maximum Tranxient Thermal Impedance



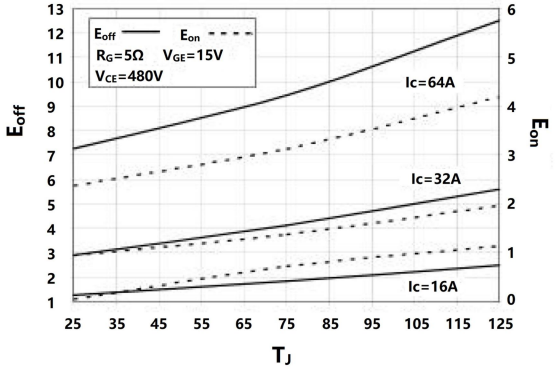
inductive Switching Energy Loss vs. Gate Resistance



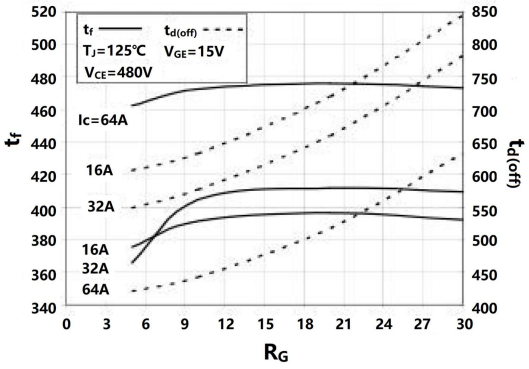
inductive Switching Energy Loss vs. Collerctor Current



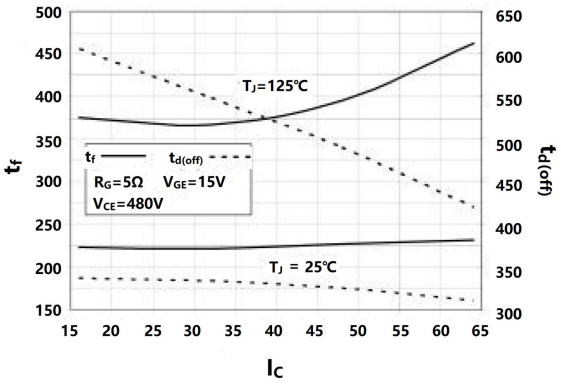
inductive Switching Energy Loss vs. Junction Temperature



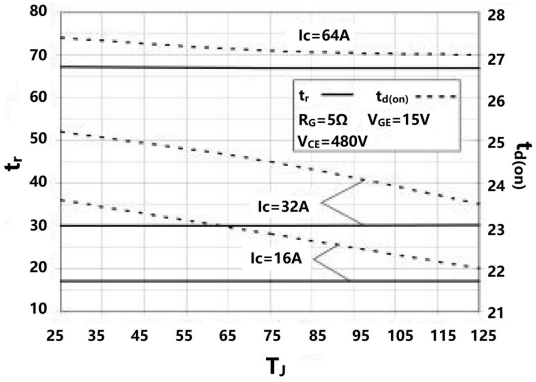
inductive Turn-off Switching Times vs. Gate Resistance



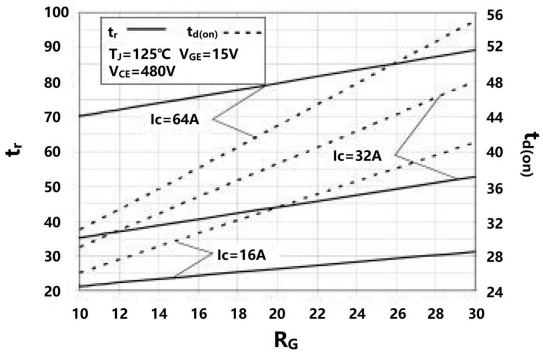
inductive Turn-off Switching Times vs. Collector Current



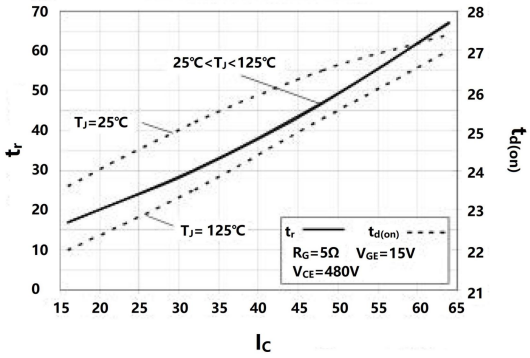
inductive Turn-on Switching Times vs. Junction Tempweature



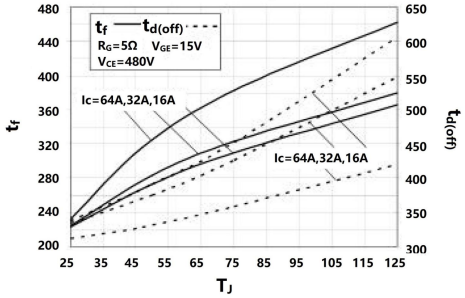
Inductive Turn-on Switchng Times vs. Gate Resistance



Inductive Turn-on Switchng Times vs. Collector Current



Inductive Turn-on Switchng Times vs. Junction Temperature



Package Mechanical DATA