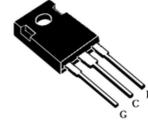


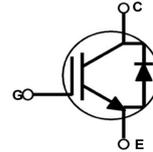
Features

- Low Gate charge
- FS Technology
- $V_{CE(sat)} = 1.68V @ I_C = 25A$
- High Input Impedance
- Short circuit withstand time 10 μs



Applications

- PFC
- UPS
- Inverter



Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Collector-emitter voltage		V_{CES}	1200	V
Gate-emitter voltage		V_{GES}	± 30	
Collector current	$T_C = 25^\circ C$	I_C	50	A
	$T_C = 100^\circ C$		25	
Pulsed collector current, pulse time limited by T_{jmax}		I_{CM}	60	
Diode forward current @ $T_C = 100^\circ C$		I_F	25	
Diode pulsed current, Pulse time limited by T_{jmax}		I_{FM}	120	
Power dissipation	$T_C = 25^\circ C$	P_D	227	
	$T_C = 100^\circ C$		132	
Operating Junction and storage temperature rang		T_J	-55 to 150	$^\circ C$
		T_{stg}	-55 to 150	

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance junction-to-ambience	$R_{\theta JA}$	62.5	$^\circ C/W$
Thermal resistance junction-to-case for IGBT	$R_{\theta JC}$	0.55	
Thermal resistance junction-to-case for Diode	$R_{\theta JC}$	0.65	

Electrical Characteristics (T_c =25°C unless otherwise specified)

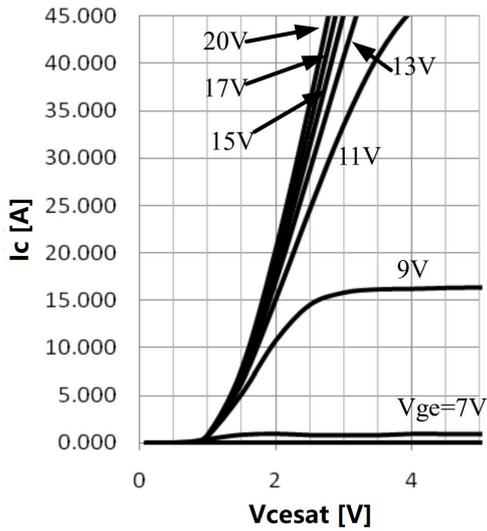
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Collector-emitter breakdown voltage	BV _{CES}	I _C = 500 μ A, V _{GE} = 0V	1200	-	-	V
Gate-emitter threshold voltage	V _{GE(th)}	V _{CE} = V _{GE} , I _C = 250 μ A	4.5	-	6.5	
Zero gate voltage collector current	I _{CES}	V _{CE} = 1200V, V _{GE} = 0V	-	-	200	μ A
Gate-emitter leakage current	I _{GES}	V _{GE} = 20V, V _{CE} = 0V	-	-	100	nA
Collector-emitter saturation voltage	V _{CE(sat)}	I _C = 25A V _{GE} = 15V T _C = 25°C	-	1.68	2.0	V
		I _C = 25A, V _{GE} = 15V, T _C = 150°C	-	2.0	-	
Dynamic and Switching Characteristics						
Total gate charge	Q _g	V _{CE} = 600V, I _C = 25A, V _{GE} = 15V	-	116	-	nC
Reverse transfer capacitance	C _{res}	V _{GE} = 15V, V _{CC} = 600V, I _C = 25A, R _G = 10Ω Inductive Load, T _C = 25°C	-	96	-	
Output capacitance	C _{oes}		-	120	-	
Turn-on delay time	t _{d(on)}		-	90	-	
Rise time	t _r		-	75	-	ns
Turn-off delay time	t _{d(off)}		-	210	-	
Fall time	t _f		-	100	-	
Turn-on switching energy	E _{on}		-	2.6	-	mJ
Turn-off switching energy	E _{off}		-	1.3	-	
Total switching energy	E _{ts}		-	3.9	-	
Diode Characteristics (T_c =25°C unless otherwise specified)						
Forward voltage	V _F	I _F =25A, T _C =25°C	-	1.68	2.75	V
		I _F =25A, T _C =125°C	-	1.55	-	
Reverse recovery time	t _{rr}	I _F =25A, di/dt=100A/μs T _C =25°C	-	220	-	ns
Reverse recovery current	I _{rr}		-	5.2	-	A
Reverse recovery charge	Q _{rr}		-	1200	-	nC

Notes:

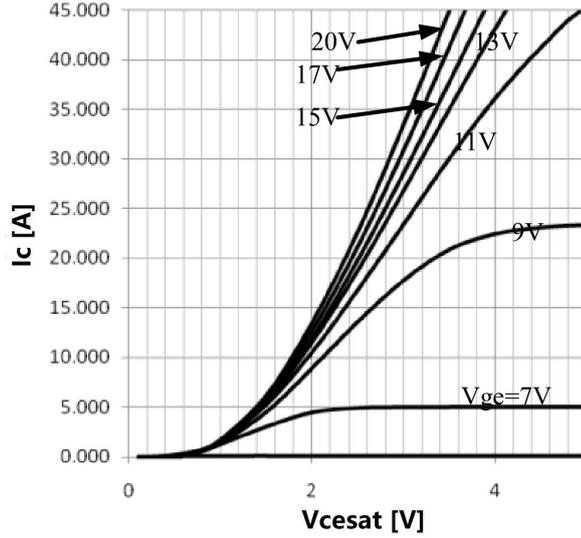
- 1: Pulse width limited by maximum junction temperature
- 2: Allowed number of short circuits: <1000; time between short circuits: >1s.
- 3: Pulse Test: Pulse Width ≤300μs, Duty Cycle ≤2%
- 4: Essentially independent of operating temperature

Typical Performance Characteristic

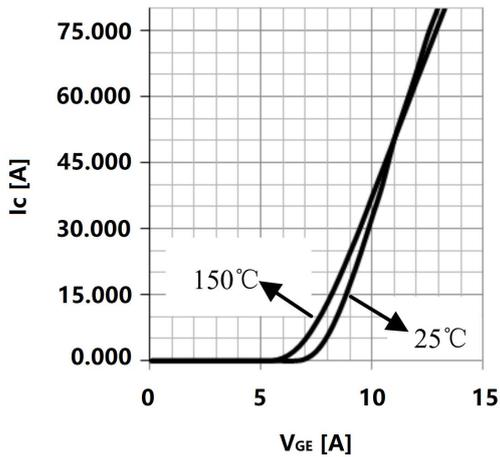
Typical Output Characteristics
[Tj]=25°C



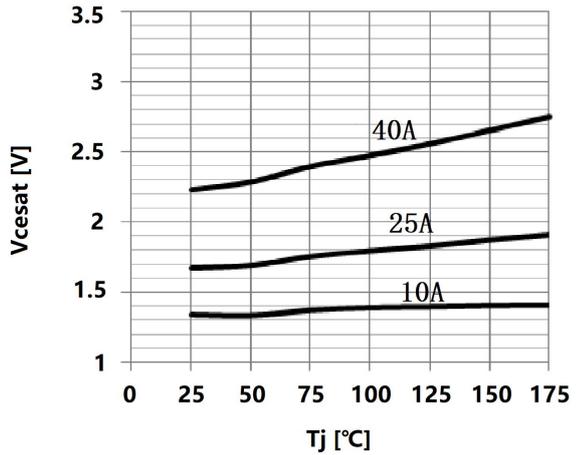
Typical Output Characteristics
[Tj]=150°C



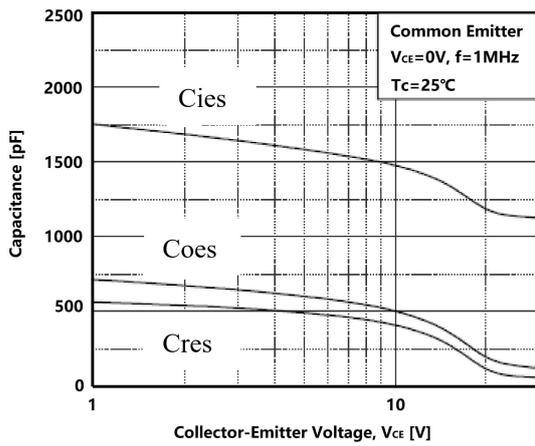
Typical Saturation Voltage Characteristics



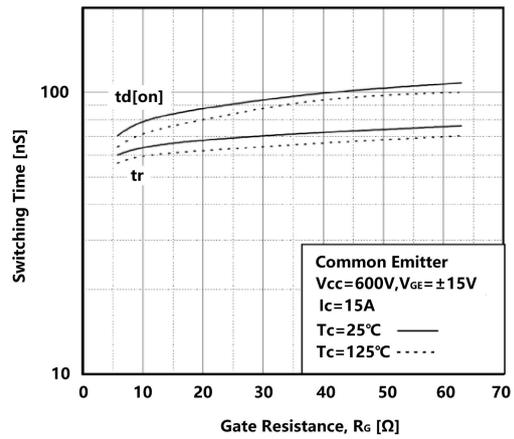
Saturation Voltage vs. Case Temperature at Variant Current Level



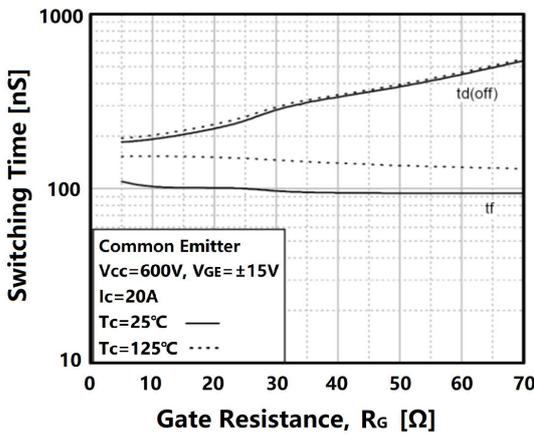
Capacitance Characteristics



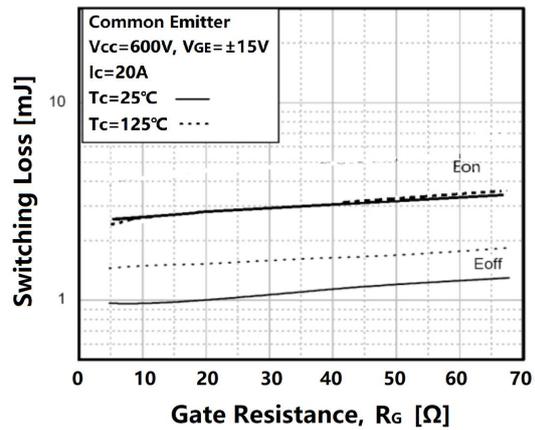
Turn-On Characteristics vs. Gate Resistance



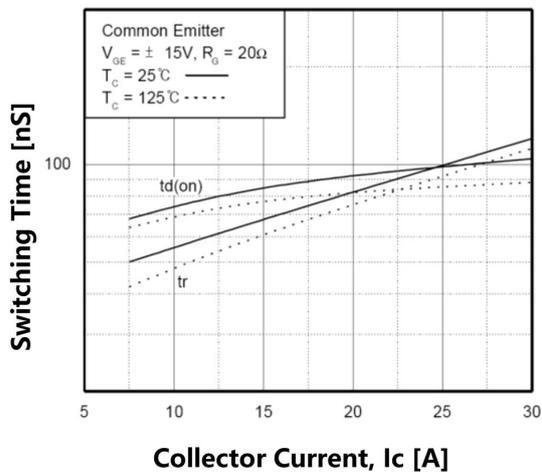
Turn-Off Characteristics vs. Gate Resistance



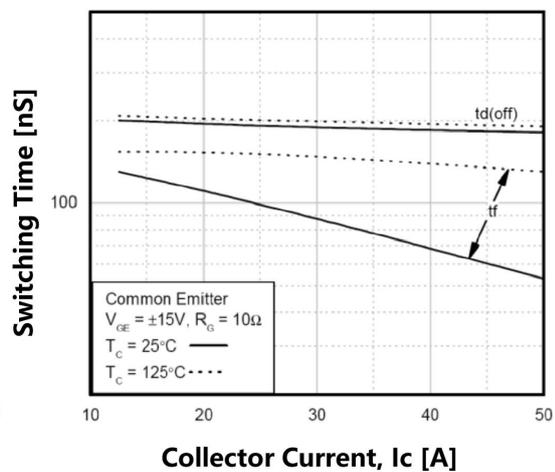
Switching Loss vs. Gate Resistance



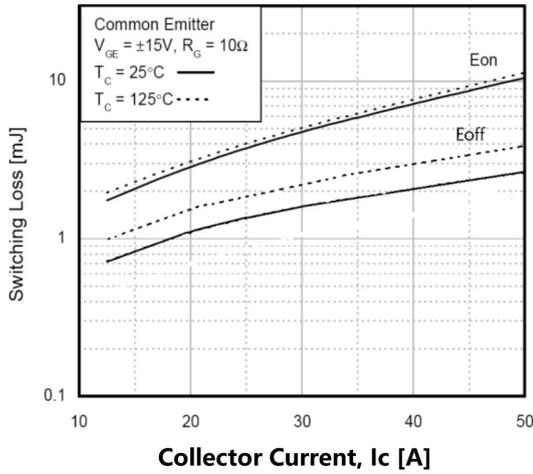
Turn-On Characteristics vs. Collector Current



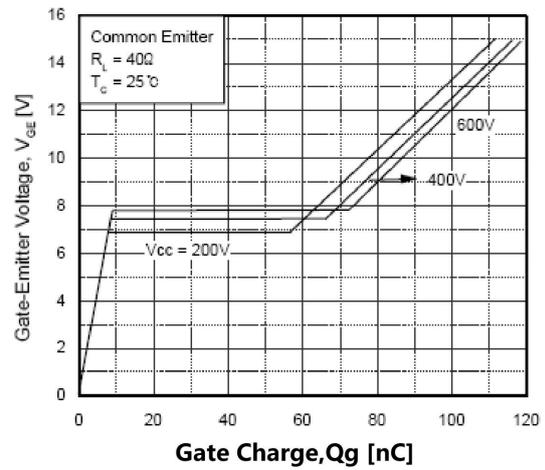
Turn-Off Characteristic vs. Collector Current



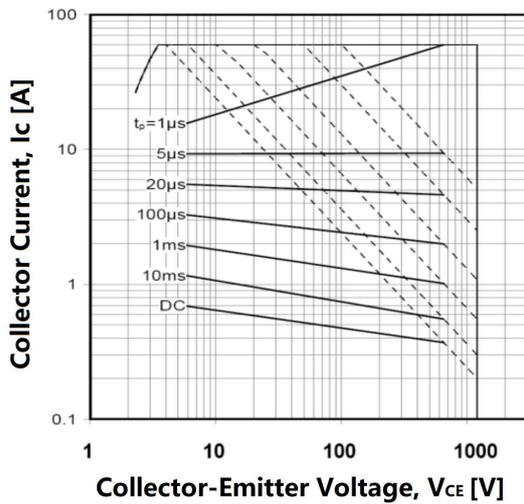
Switching Loss vs. Collector Current



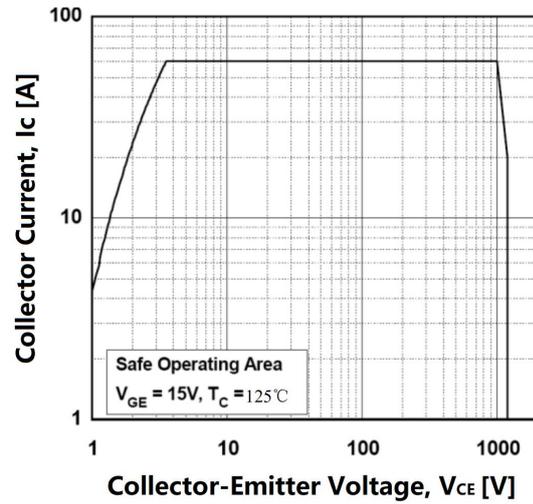
Gate Charge Characteristics



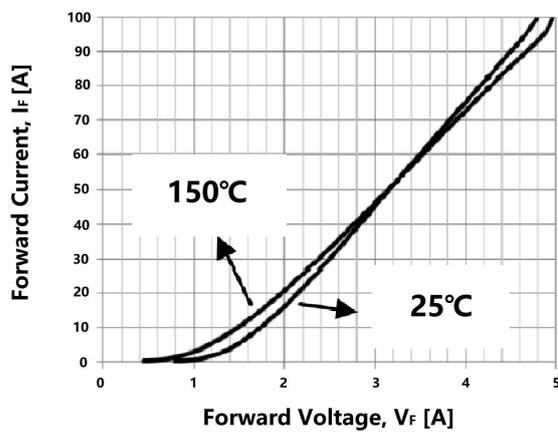
SOA Characteristics



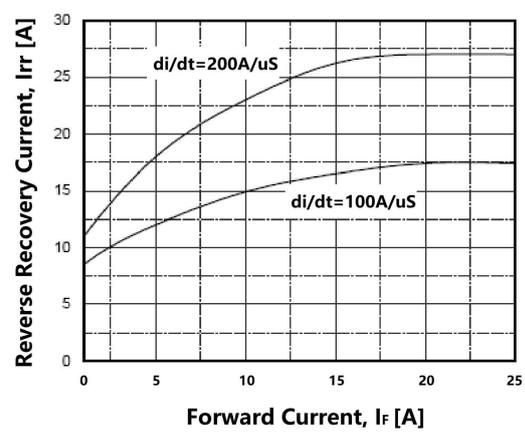
Turn-Off SOA



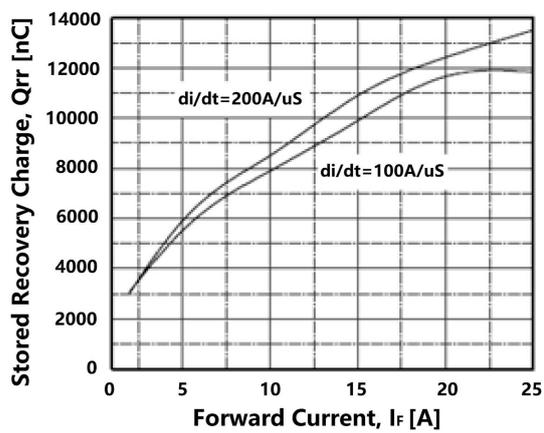
Forward Characteristics



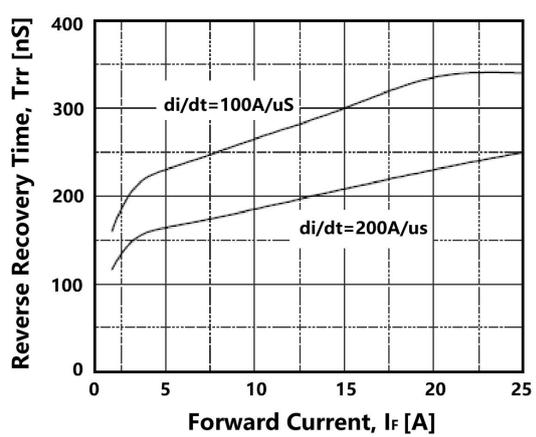
Reverse Recovery Current



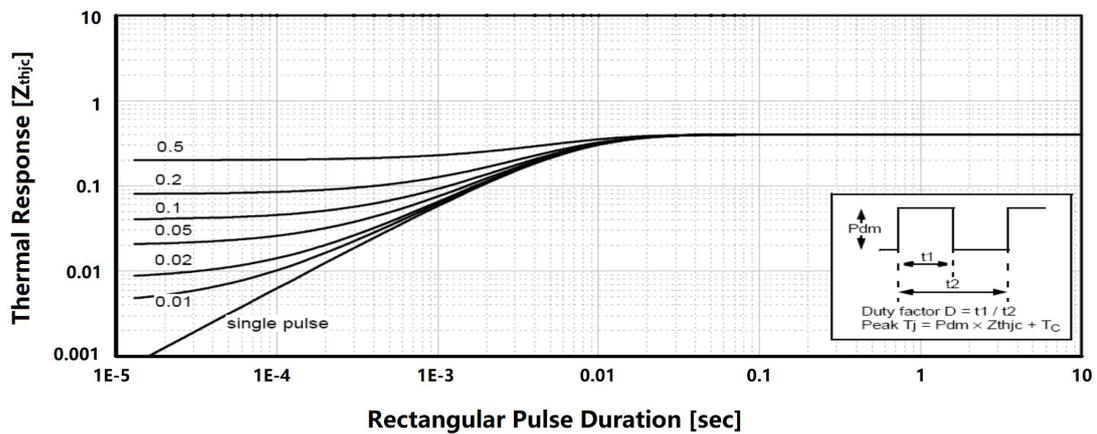
Stored Charge



Reverse Recovery Time



Transient Thermal Impedance



Package outline dimension

