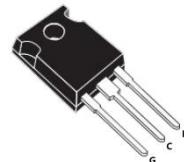


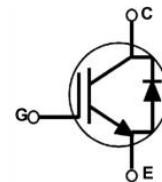
Features

- High Current Capability
- Low Saturation Voltage:
V_{CE(sat)} = 1.55 V @ IC = 50 A
- High Input Impedance
- RoHS Complaint



Applications

- PDP TV



Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Collector to Emitter Voltage	V _{CES}	350	V
Gate to Emitter Voltage	V _{GES}	±30	
Collector Current	I _C	100	A
T _C =100°C	I _C	50	
Pulsed Collector Current TC=25°C	I _{CM}	200	
Maximum Power Dissipation TC=25°C	P _D	302	W
Maximum Power Dissipation TC=100°C	P _D	138	
Operating Junction Temperature	T _J	-55 to 150	°C
Storage Temperature Range	T _{stg}	-55 to 150	
Maximum Lead Temp. for soldering Purposes, 1/8" from case for 5 seconds	T _L	300	

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance, Junction to Case	R _{θJC} (IGBT)	-	0.38	°C/W
Thermal Resistance, Junction to Case	R _{θJC} (Diode)	-	1.1	

Package Marking and Ordering Information

Device Marking	Device	Package	MOQ
MSG50N350HLC0	MSG50N350HLC0	TO-247	

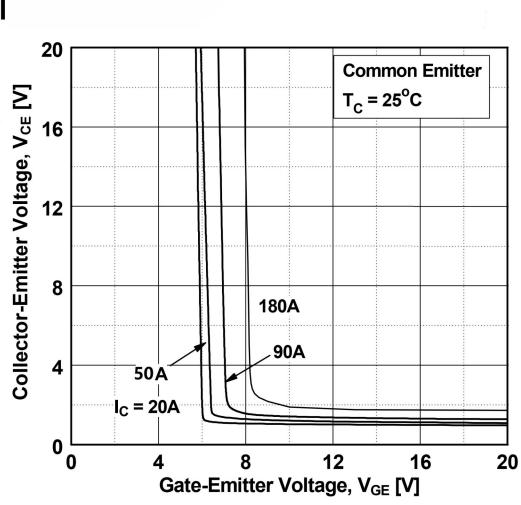
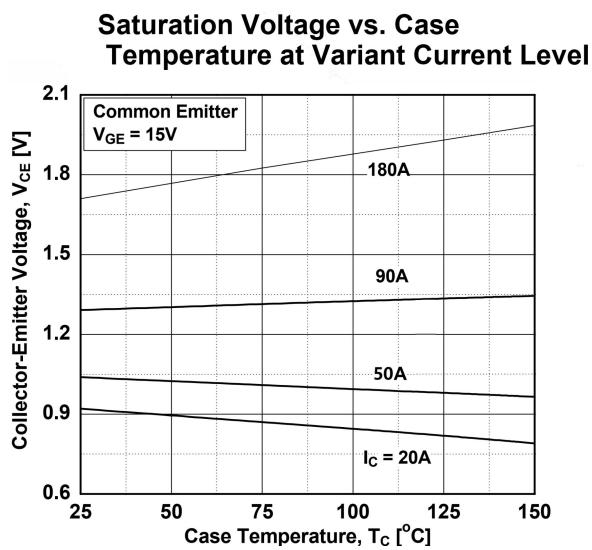
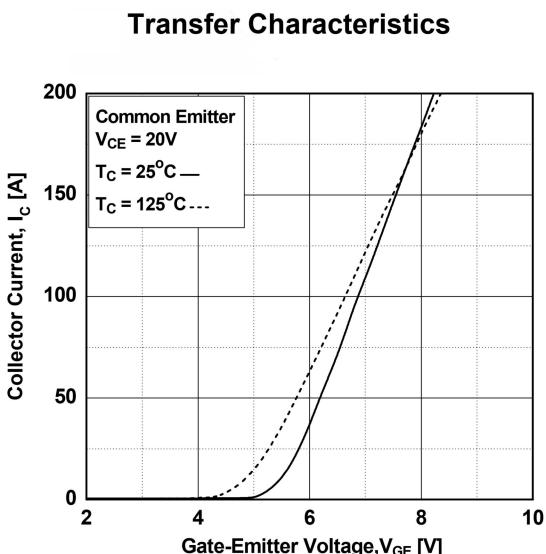
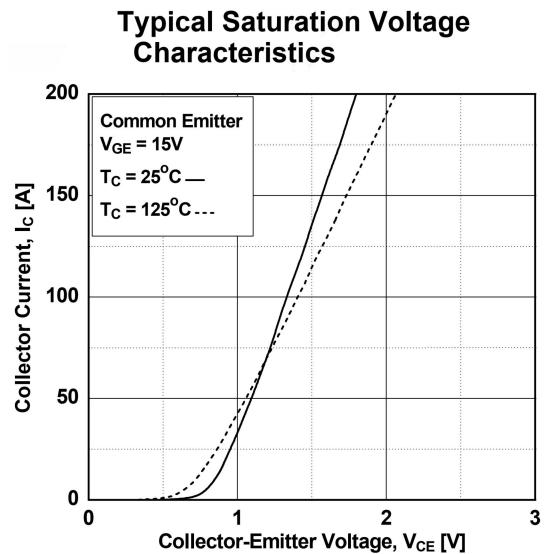
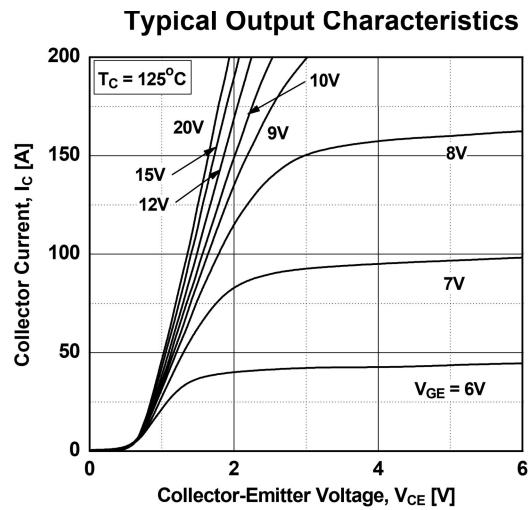
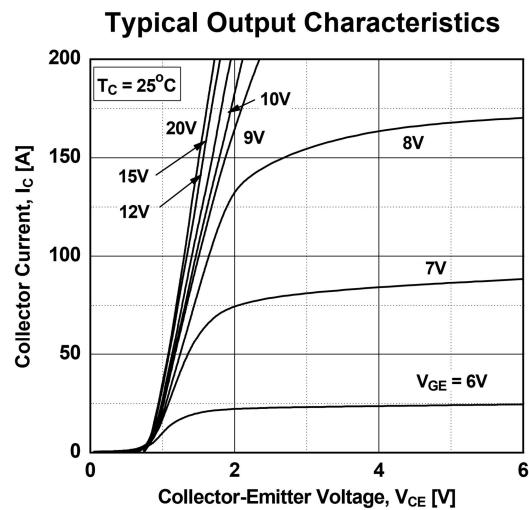
Electrical Characteristics of the IGBT $T_c = 25^\circ\text{C}$ unless otherwise noted

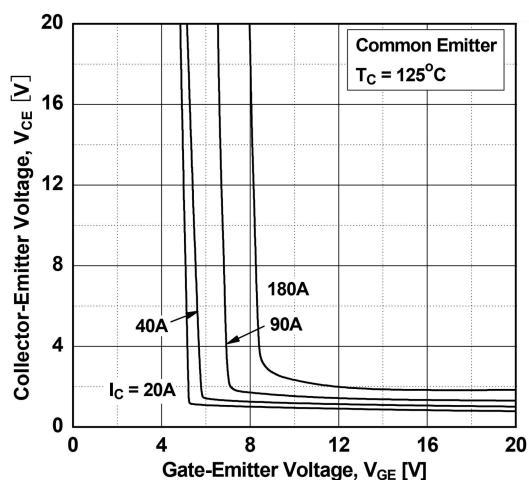
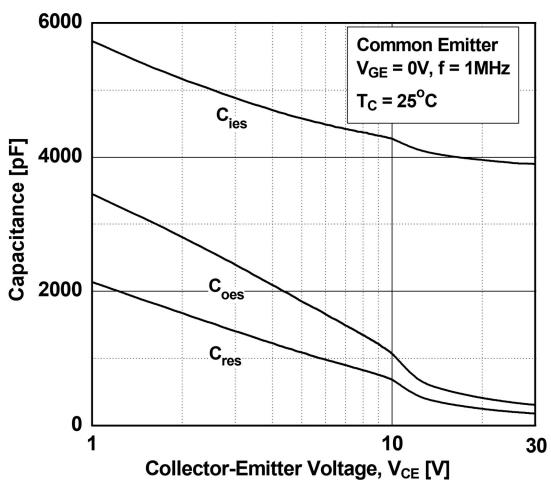
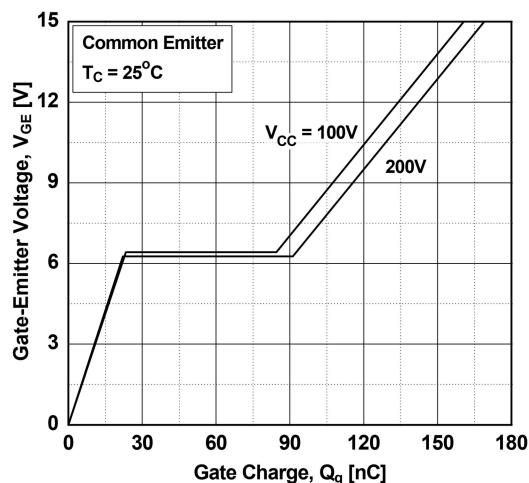
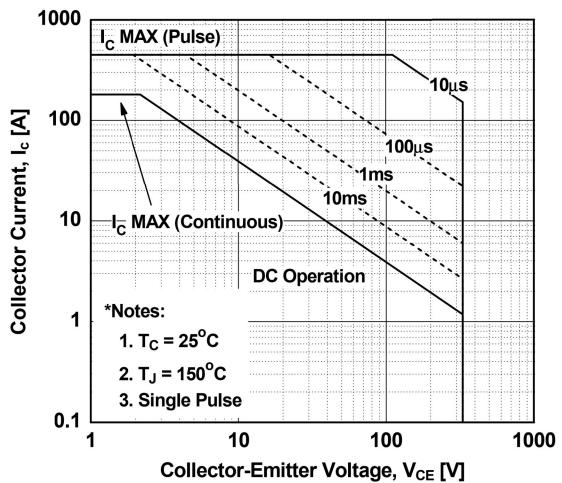
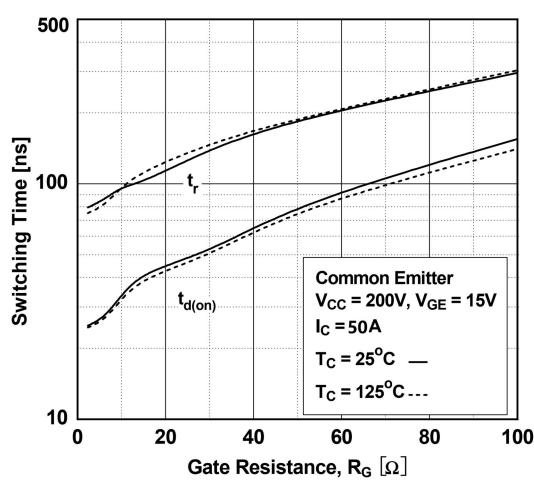
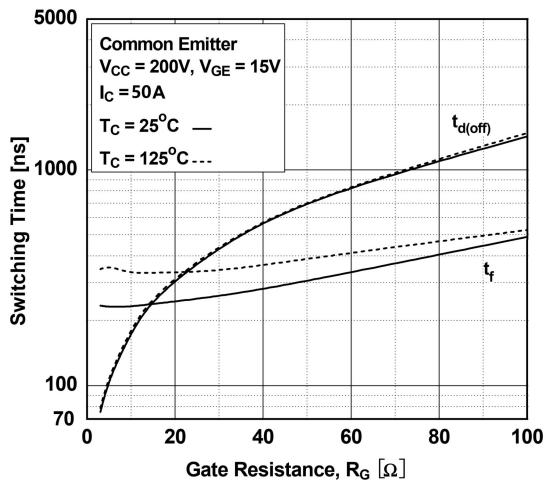
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
On/off Characteristics						
G-E Threshold Voltag	$V_{GE(\text{th})}$	$I_C = 250\mu\text{A}, V_{CE} = V_{GE}$	2.5	4	5.5	
Collector to Emitter Saturation Voltage	$V_{CE(\text{sat})}$	$I_C = 50\text{A}, V_{GE} = 15\text{V}$	-	1.55	-	V
Collector to Emitter Breakdown Voltage	B_{VCE}	$V_{GE} = 0\text{V}, I_C = 400\mu\text{A}$	350	-	-	
Collector Cut-Off Curren	I_{CE}	$V_{CE} = V_{CES}, V_{GE} = 0$	-	-	100	μA
G-E Leakage Curren	I_{GE}	$V_{GE} = V_{GES}, V_{CE} = 0\text{V}$	-	-	± 1	nA
Dynamic Characteristics						
Input Capacitance	C_{IES}	$V_{CE} = 30\text{V}, V_{GE} = 0\text{V}$ $f = 1\text{MHz}$	-	4900	-	pF
Output Capacitance	C_{OES}		-	2188	-	
Reverse Transfer Capacitance	C_{RES}		-	96	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	$V_{CC} = 200\text{V}, I_C = 40\text{A},$ $R_G = 5\Omega, V_{GE} = 15\text{V},$ Resistive Load, $T_C = 25^\circ\text{C}$	-	78	-	nS
Rise Tim	t_r		-	93	-	
Turn-Off Delay Tim	$t_{d(off)}$		-	142	-	
Total Gate Charge	Q_g	$V_{CE} = 200\text{V}, I_C = 40\text{A},$ $V_{GE} = 15\text{V}$	-	175	-	nC

Electrical Characteristics of the Diode $T_c = 25^\circ\text{C}$ unless otherwise noted

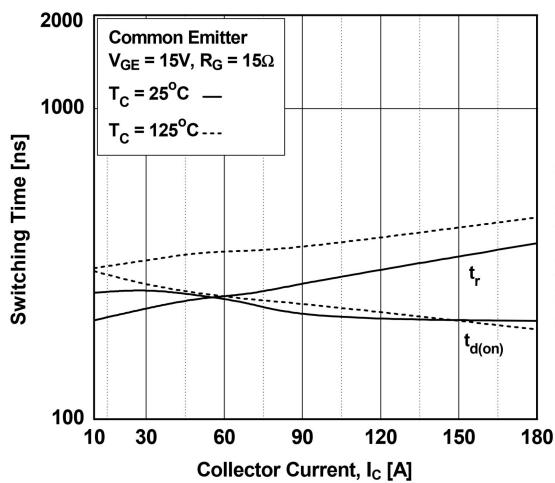
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Diode Forward Voltage	V_{FM}	$I_F = 20\text{A}$	$T_c=25^\circ\text{C}$	-	1.25	1.43
			$T_c=125^\circ\text{C}$	-	1.1	-
Diode Reverse Recovery Time	t_{rr}	$I_F = 20\text{A},$ $di_F/dt = 200\text{A}/\mu\text{s}$	$T_c=25^\circ\text{C}$	-	35	-
			$T_c=125^\circ\text{C}$	-	53	-
Diode Peak Reverse Recovery Cyrrent	I_{rr}	$T_c=25^\circ\text{C}$ $T_c=125^\circ\text{C}$	-	4	-	A
			-	6	-	
Diode Reverse Recovery Charge	Q_{rr}	$T_c=25^\circ\text{C}$ $T_c=125^\circ\text{C}$	-	50	-	nC
			-	120	-	

Typical Performance Characteristics

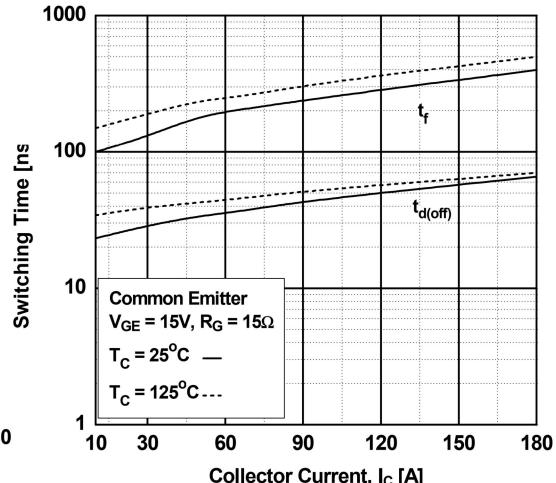


Saturation Voltage vs. V_{GE}

Capacitance Characteristics

Gate charge Characteristics

SOA Characteristics

Turn-on Characteristics vs. Gate Resistance

Turn-off Characteristics vs Gate Resistance


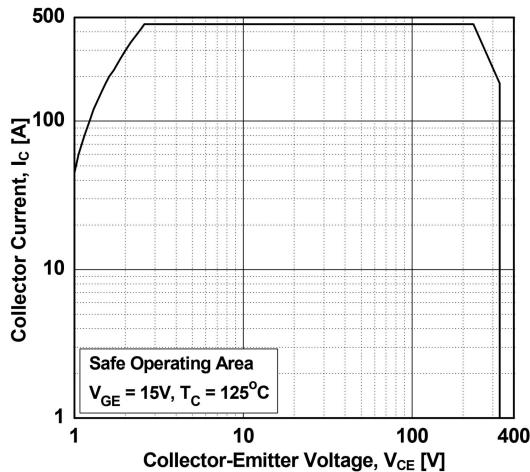
Turn-on Characteristics vs. Collector Current



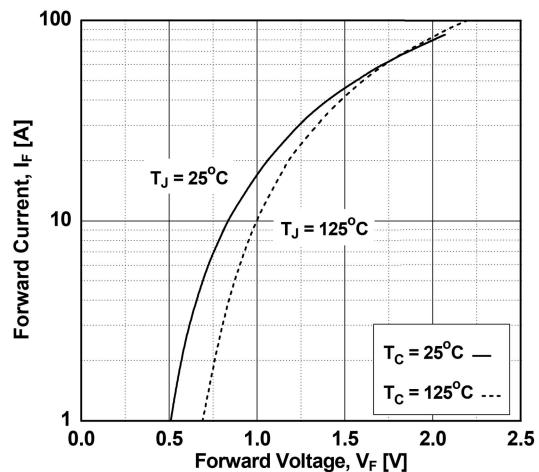
Turn-off Characteristics v Collector Current



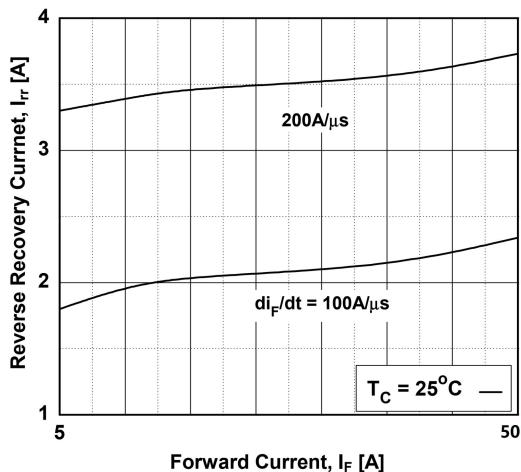
Turn off Switching SOA Characteristics



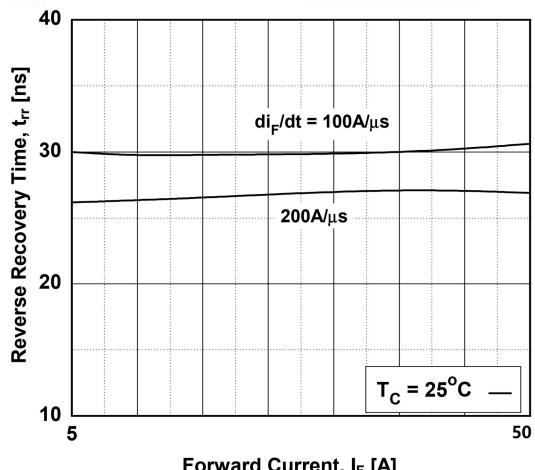
Forward Characteristics



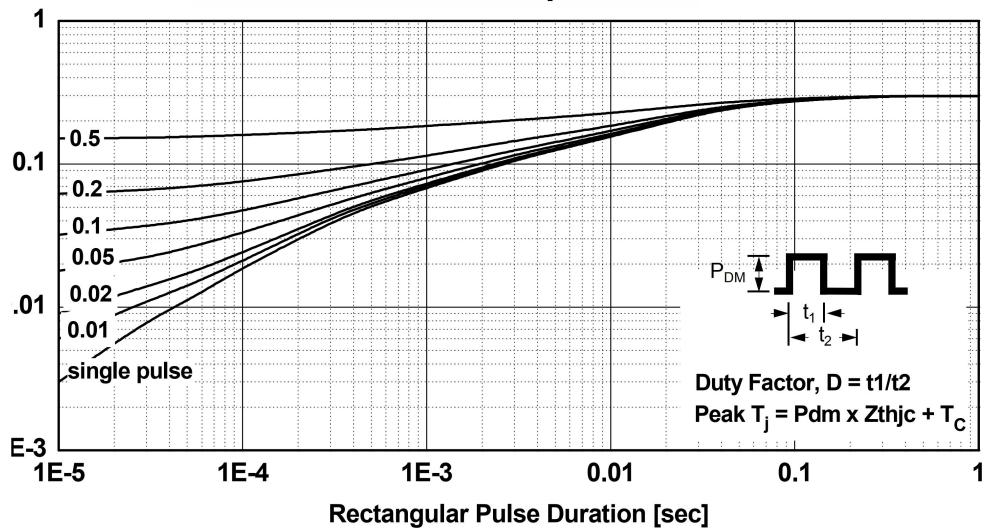
Reverse Recovery Current



Reverse Recovery Time



Transient Thermal Impedance of IGBT



Package outline dimension

