

**G53YT**

**650V/ 3A Silicon Carbide Power Schottky Barrier Diode**

**Features**

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

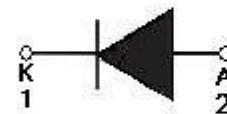
**Benefits**

- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements

**Applications**

- SMPS, e.g., CCM PFC;
- Motor drives, Solar application, UPS, Wind turbine, Rail traction, EV/HEV

Key Characteristics		
$V_{RRM}$	<b>650</b>	<b>V</b>
$I_F, T_c \leq 125^\circ\text{C}$	<b>3</b>	<b>A</b>
$Q_c$	<b>11</b>	<b>nC</b>



Part No.	Package Type	Marking
G53YT	SMA	G53YT

**Maximum Ratings**

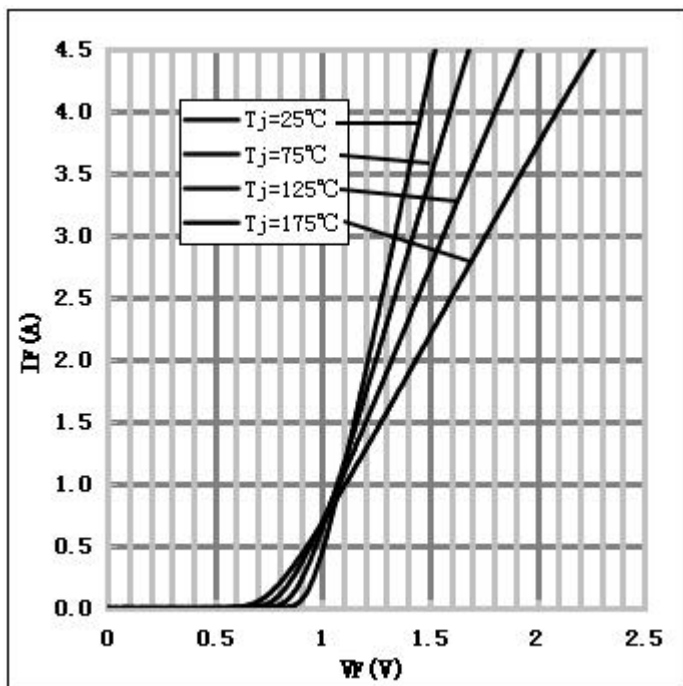
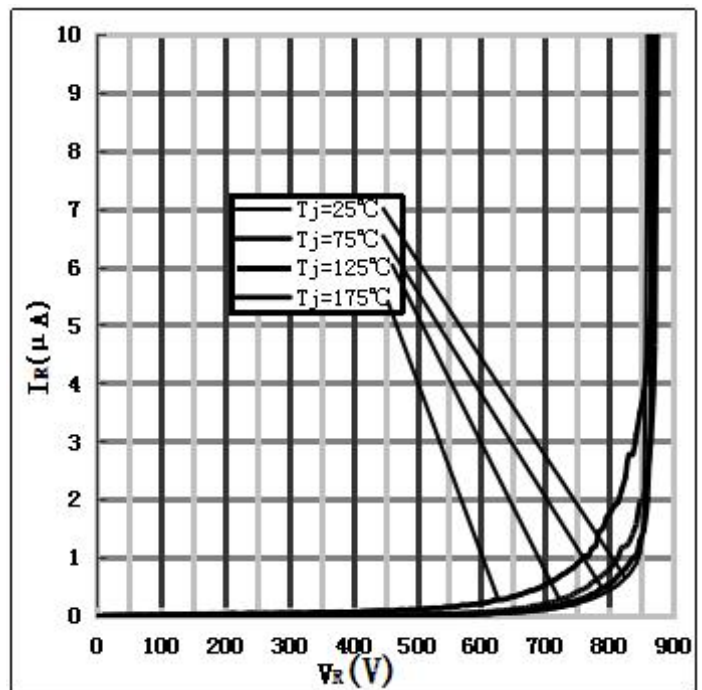
Parameter	Symbol	Test Condition	Value	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$		650	V
Surge Peak Reverse Voltage	$V_{RSM}$		650	V
DC Blocking Voltage	$V_{DC}$		650	V
Continuous Forward Current	$I_F$	$T_C=25^{\circ}C$ $T_C=100^{\circ}C$ $T_C=125^{\circ}C$	5.5 3.7 3	A
Repetitive Peak Forward Surge Current	$I_{FRM}$	$T_C=25^{\circ}C$ , $t_p=10ms$ , Half Sine Wave, $D=0.3$	20	A
Non-repetitive Peak Forward Surge Current	$I_{FSM}$	$T_C=25^{\circ}C$ , $t_p=10ms$ , Half Sine Wave	32	A
Power Dissipation	$P_{TOT}$	$T_C=25^{\circ}C$	68	W
		$T_C=110^{\circ}C$	30	W
Operating Junction	$T_j$		-55°C to 175°C	°C
Storage Temperature	$T_{stg}$		-55°C to 175°C	°C

**Thermal Characteristics**

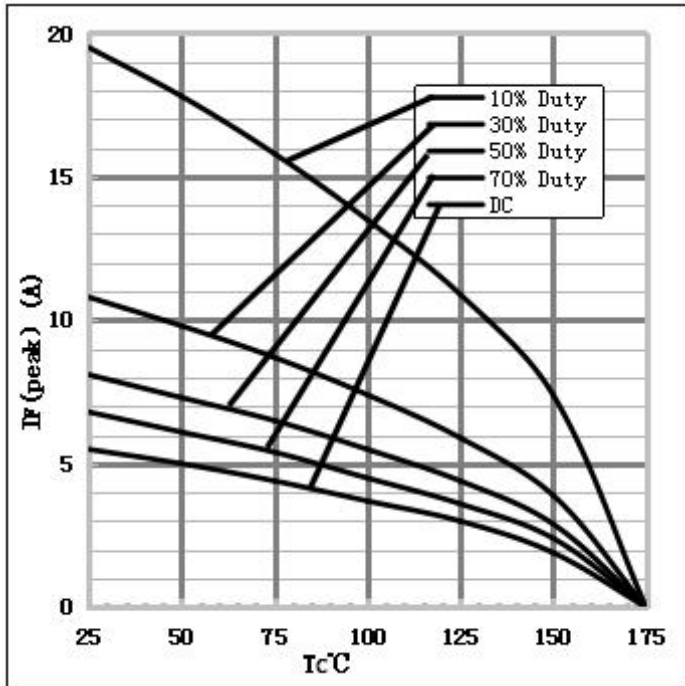
Parameter	Symbol	Test Condition	Value	Unit
			Typ.	
Thermal resistance from junction to case	$R_{thJC}$		10.4	°C/W

Electrical Characteristics

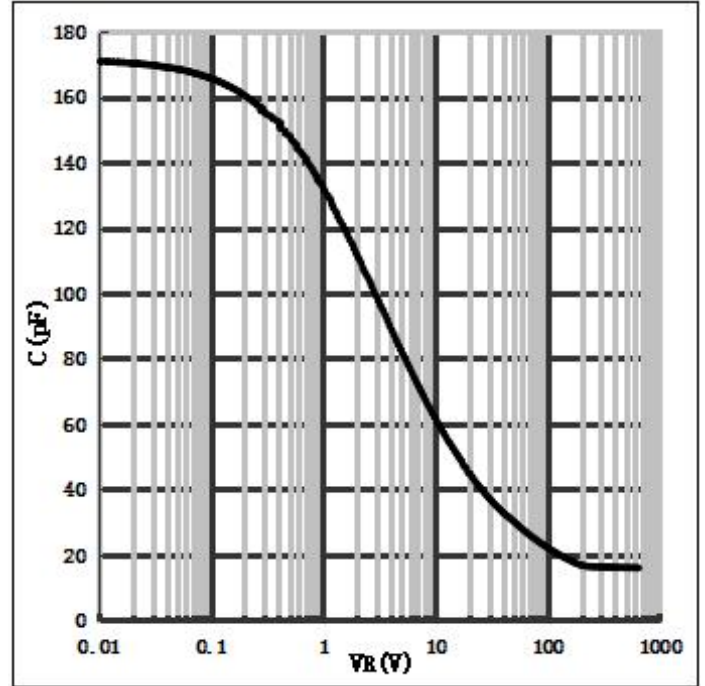
Parameter	Symbol	Test Conditions	Numerical		Unit
			Typ.	Max.	
Forward Voltage	$V_F$	$I_F=3A, T_j=25^\circ C$	1.35	1.6	V
		$I_F=3A, T_j=175^\circ C$	1.8	2.5	
Reverse Current	$I_R$	$V_R=650V, T_j=25^\circ C$	0.07	50	$\mu A$
		$V_R=650V, T_j=175^\circ C$	0.65	100	
Total Capacitive Charge	$Q_C$	$V_R=400V, T_j=175^\circ C$ $Q_C = \int_0^{V_R} C(V)dV$	11	-	nC
Total Capacitance	C	$V_R=0V, T_j=25^\circ C, f=1MHz$	181	220	pF
		$V_R=200V, T_j=25^\circ C, f=1MHz$	22.5	25	
		$V_R=400V, T_j=25^\circ C, f=1MHz$	20.5	22	

Performance Graphs1) Forward IV characteristics as a function of  $T_j$  :2) Reverse IV characteristics as a function of  $T_j$  :

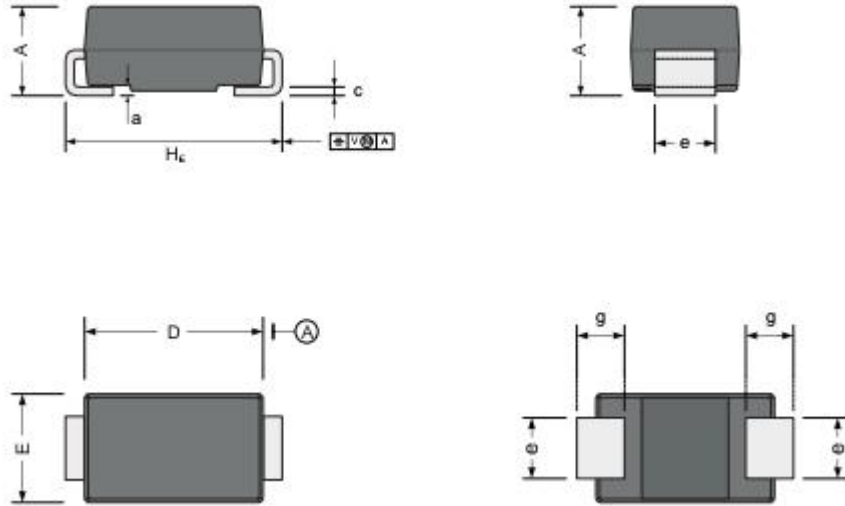
3) Current Derating:



4) Capacitance vs. reverse voltage:



Package SMA



UNIT		A	D	E	H $\epsilon$	c	e	g	a
mm	max	2.2	4.5	2.7	5.2	0.31	1.6	1.5	0.3
	min	1.9	4.0	2.3	4.7	0.15	1.3	0.9	
mil	max	87	181	106	205	12	63	59	12
	min	75	157	91	185	6	51	35	

**Note:** The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC(RoHS2).